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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Some Observations on Industrial Dermatitis. By SIBYL G. HORNER, M.B., D.P.H. 233
Glandular Fever and Infectious Mononucleosis. By H. LETHEBY TIDY, F.R.C.P.—(*Concluded*) .. 236
Two Cases of Basophil Adenoma of the Pituitary Gland. By DOROTHY S. RUSSELL, M.D., H. EVANS, M.R.C.P., and A. C. CROOKE, M.B.—(*Illustrated*) 240
Treatment of Rheumatic Diseases. By C. W. BUCKLEY, F.R.C.P. 246
Bacillary Dysentery of the Newcastle Type. By H. WHITEHEAD, M.D., D.P.H. Note on the Bacteriology by W. M. SCOTT, M.D. 248
Treatment of Bronchial Asthma by Dorsal Perisympathetic Injection of Absolute Alcohol. By G. L. L. LEVIN, M.B. .. 249
Secondary Carcinoma of the Myocardium. By E. M. WARD, M.B.—(*Illustrated*) 250
Antihæmolysin Titres in Chronic Rheumatic and Allied Diseases. By G. J. GRIFFITHS, M.B. 251
An Explosive Eructation. By C. F. T. EAST, F.R.C.P. 252

REVIEWS AND NOTICES OF BOOKS

The Social Survey of Merseyside. Edited by D. Caradog Jones, M.A. 253
Japanese Medicine. By Y. Fujikawa, M.D. Translated by J. Ruhrah, M.D. 254
The 1933 Year Book of Pediatrics. Edited by Prof. Isaac A. Abt, M.D. With the collaboration of A. F. Abt, M.D. 254

INDEX NOTICE

Index to "THE LANCET," Vol. I., 1934 262

LEADING ARTICLES

THE PATIENT'S CONFIDENCE 255
SKELETAL DISEASES OF DOMESTICATED ANIMALS 256
PROGRESS OF THE BED-BUG 257

ANNOTATIONS

The Case of the Deaf 258
The Blood in Pregnancy .. 259
Research on Cancer..... 259
Definition of Blindness.... 259
The Expansion of the R.A.F. 260
Radiography of the Sella Turcica 260
Industrial Health 260
Serum Treatment of Acute Staphylococcal Infections 261
The Ambulance Work of the Order of St. John .. 261
Calmette's Ordeal..... 262
Financial Situation of the London Voluntary Hospitals 262
Radiotherapy of Uterine Cancer..... 262
Factories and Workshops.. 262

PROGNOSIS

XIII.—Prognosis in Injuries of the Elbow-joint. By H. A. T. FAIRBANK, F.R.C.S. 264

SPECIAL ARTICLES

British Medical Association: Proceedings of the Representative Body: Use of Anæsthetics and Analgesics by Midwives—The Law relating to Abortion—Secret Remedies—Direct Representatives.. 265
The Annual Dinner 267
Annual General Meeting.. 267
Section of Medicine: Achlorhydria 268
Section of Surgery: Bad Surgical Risks 270
Section of Neurology, Psychological Medicine, and Mental Diseases .. 272
Notes from India: The Indian Medical Council.. 274
Links between London Hospitals — (*Illustrated*) 275
Medicine and the Law: Cross-infection at a Hospital; Negligence Claim Fails 276

PANEL AND CONTRACT PRACTICE

Mortgaging the Practice—Health Propaganda 277

PUBLIC HEALTH

London Sewage and the River Thames. — Port Medical Service..... 278
Infectious Disease in England and Wales .. 278

OBITUARY

Marcus Seymour Pembrey, F.R.S., M.D. — (*With portrait*)..... 279
William Foster Cross, M.R.C.S..... 280

CORRESPONDENCE

Unemployment Assistance: Determination of Needs (Sir Farquhar Buzzard, and others)..... 280
Re-examination of Mental Defectives (Dr. E. D. Macnamara) 280
Displacement of the Internal Epicondyle into the Elbow-joint (Mr. Norman Roberts, F.R.C.S.) 281
Calling the Anæsthetist (Dr. Gerald Slot) 281
Perineo-abdominal Excision of the Rectum (Mr. W. B. Gabriel, F.R.C.S.) 282
The Treatment of Corns (Col. J. K. McConnel).. 282
Glandular Fever and Infectious Mononucleosis (Prof. A. J. Hall) 282

THE SERVICES

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service.—Royal Air Force 277

PARLIAMENT

Notes on Current Topics: Summer Adjournment.—Safety and Health in Mines. — Unemployment and Health Insurance.—Progress of Town Planning.—Road Traffic Bill 283
House of Commons: Inspection of Private Swimming Pools.—Exhaust Fumes of Motor Vehicles.—Hospital Treatment of Pensioners.—Medical Inspection of Mental Defectives.—Certified Dairy Herds in Scotland.—Turkish Compensation for Death of British Officer 284

MEDICAL NEWS

Roy. Coll. Phys. Lond..... 285
University of London 286
Roy. Coll. Phys. Edin..... 286
Roy. Coll. Surg. Edin..... 286
Scottish Conjoint Board .. 286
Queen's University of Belfast 287
Bad Nauheim: Internisten Congress..... 246
Royal Sea-Bathing Hospital, Margate 264
Middlesex Hospital 276
Traffic in Women in the East 282
Brit. Coll. of Obstet. and Gynæcol. 287
Epsom College 287
University of Manchester.. 287
Oxford Ophthalmological Congress 287
A Memorial to Madame Curie 287
Flats for the Working Classes 287
Donations and Bequests .. 287
Bristol General Hospital .. 287
The Duke of Gloucester at Papworth 288

NOTES, COMMENTS, AND ABSTRACTS

Factors Influencing Children's Sleep 289
The Ætiology of Parapsoriasis 289
The Author's and Writer's Who's Who 289
Malaria in Man and Monkey 290
Wine and Food 290
A "Post Mortem" on Dr. Johnson 290
Life-saving Made Easy .. 290

Medical Diary 288
Vacancies 288
Appointments 288
Births, Marriages, Deaths 288

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SOME OBSERVATIONS ON INDUSTRIAL DERMATITIS*

By Sibyl G. Horner, M.B. Lond., D.P.H.
H.M. MEDICAL INSPECTOR OF FACTORIES

Dermatitis of occupation has a wider interpretation than is usually conceded to the condition called eczema. It includes under the heading of "dermatitis" almost any pathological condition of the skin and its appendages which can be attributed to occupation.

It may be well to deal shortly with the official position of occupational dermatitis. It is not, as is sometimes supposed, notifiable under the Factory and Workshop Act; the only skin conditions which are so dignified are anthrax, "epitheliomatous ulceration," and chrome ulceration. The onus of notification of these is on the practitioner if he believes the condition to have been contracted in a factory or workshop, and also on the occupier of the factory or workshop even though the subject remains at work. The notifiable conditions, as well as "dermatitis due to dust or liquids," are, however, compensatable under the Workmen's Compensation Act. The decision as to whether the condition comes within this description lies with the certifying surgeon, of which there are a number throughout the country. Appeal lies to the medical referee, whose decision as regards the disease is final.

There are two main reasons for the importance of dermatitis of occupation: (1) the fact that one attack of dermatitis in industry is more than likely to be followed by another under the same conditions; (2) the other the enormous cost of the bill of compensation.

In 1932 there were nearly 2000 compensated cases of "dermatitis due to dust or liquids"—the highest figure yet reached. Dermatologists will appreciate the length of disablement which is likely to result among these unfortunate 2000, and will also recognise the lessened security of these workers on their return to their occupation. This is sheer wastage of health and money, for the astonishing fact is that dermatitis of occupation is largely preventable.

We have come to know more about the condition from cases of dermatitis voluntarily reported by employers in industry. About half the compensated cases are subjected to investigation in this way. We know, for example, that more cases of dermatitis are caused by what may be classed as "cleansers" used after work than by irritants directly encountered at work.

One of these cleansers met with recently proved to be largely white spirit with more than a dash of cresylic acid. Notable among these harmful cleansers is paraffin. The *Times* has recently been the medium for some correspondence headed "Paraffin for the bath"! The effects of such treatment, either on the hands of the domestic cleaner or on the more delicate parts of the epidermis of the bather, from any residual paraffin, are evidently not generally appreciated, for no mention was made of them. The ignorance of workers is not, in the circumstances, a matter for wonder.

Some years ago workers were content to leave the signs of toil on their skin until a week-end cleaning, but the modern worker, man and woman, is not so satisfied. Outside the factory manual workers are often indistinguishable from their brethren who handle the pen. It is not necessarily the dirty workers, except those in contact with oil, who acquire dermatitis, but often those with a passion for cleanliness. One man was aggrieved because he was so affected although he washed "twenty-four times daily at the works." It is, of course, praiseworthy and desirable that workers should leave the factory clean, but further education of those responsible is necessary to ensure that the process of cleaning does not produce dermatitis.

The worst offenders amongst cleansers are alkalis (washing soda, soda ash, and chloride of lime, which are popular—the latter two for their bleaching effect), and various degreasing agents, such as paraffin, turpentine, and methylated spirit.

Preventive Measures before Work

But this is, perhaps, beginning at the end. What preventive measures can be taken before work? Gloves are the first for consideration, but unless there is unavoidable contact with powerful irritants such as the strong acids—e.g., sulphuric, nitric, chromic, hydrofluoric; solutions of bichromates of sodium and potassium, and caustic soda, and so forth—gloves are best avoided, although they are valuable against trauma from heat and other physical causes. The best and most widely applicable protection is, in my opinion, afforded by the use of some emollient before work. This can be non-greasy, greasy, or waterproof as the work demands, and not only is a certain degree of protection ensured at work but the final cosmetic wash will not be a further exposure to risk, for it is found that paint, dyes, french polish—to name only a few—will then be capable of removal by gentler methods.

Causative Agents and Occupations

Tables I. and II. show respectively the chief causative agents and the occupations of those affected

Table I.—*Causative Agents*

—	1932	1931	1930	1929	1928	1927
Alkalis	148	155	160	157	129	72
Sugar	79	67	71	65	51	32
Oil	81	50	69	104	65	59
Chrome	51	28	57	35	19	6
Turpentine and substitutes	64	43	49	67	66	31
Dyes	48	40	47	41	32	34
Chemicals—unclassified	56	44	43	61	20	14
Friction and heat	68	31	43	25	28	17
Petrol, benzol, &c.	24	30	39	30	26	22
Dough	23	38	35	30	40	21
Acids	21	23	28	31	16	34
Paraffin	37	35	26	25	21	26
French polish	19	15	25	17	8	29
Nickel compounds	20	9	19	17	13	7
Accelerators	4	5	11	11	7	19

Table II.—*Occupations*

Total	909	666	789	834	662	525
—	1932	1931	1930	1929	1928	1927
Dyers and calico printers	104	82	104	54	50	46
Engineers	125	90	102	114	108	81
Labourers	57	56	74	31	31	22
Metal platers and polishers	64	44	66	53	47	21
Bakers and confectioners	52	56	58	50	58	33
French polishers	45	42	50	40	45	38
Painters	74	29	40	86	46	18
Leather workers and tanners	21	19	38	13	8	9
Chemical workers	34	35	31	58	37	52
Rubber workers	25	25	31	19	29	31
Sugar confectioners	38	30	30	37	26	11
Metal workers	31	21	28	27	16	19
Textile workers	34	25	20	14	18	23
Oil refiners	5	10	19	7	1	11
Printers	8	16	19	12	9	5
Sugar refiners	18	12	13	9	15	7
Pottery workers	18	5	13	8	7	6
Flour workers	9	3	9	12	3	5
Biscuit makers	30	20	8	12	4	2

* An address delivered before the St. John's Dermatological Society on April 25th, 1934.

in the cases of dermatitis in industry which have been voluntarily reported in the years 1927–1932 inclusive.

SUGARS, OIL, AND TERPENES

Of the causative agents *alkalis* have already been discussed; they are very often cleansers. *Sugar* is the chief cause of dermatitis in the manufacture of sugar confectionery, sugar refining, and biscuit making (the processes of "creaming and icing"). There always seems to be an element of infection in sugar dermatitis; one meets with sugar "boils" in sugar refiners, subacute and acute perionychia in sweet-makers. Indeed, among those engaged in candying fruits one is certain to find instances of sepsis around the nails. Sugar may afford a suitable pabulum for organisms either present on the skin or more usually infecting abrasions, possibly themselves caused by trauma and friction of sugary surfaces. There is evidence that the injuries caused by unskilled manicure hasten the development of perionychial infections among sugar workers. The work of MacLeod [1] on the rôle that monilia infection plays in the causation of suppurative perionychia characterised by a pad or bolster-like swelling of the nail wall on workers exposed to sugar, is of striking interest. It may be that the monilias and other yeast-like fungi will provide the key to some unsolved problems of causation in industrial dermatoses.

The *bichromates*, but not the chromates of potassium and sodium, and *chromic acid* cause either a dermatitis or localised ulceration, depending mainly on the presence or not of trauma. Fair-haired people are particularly prone to a "chrome dermatitis," and their presence at a chromium plating or anodic oxidation bath (where aluminium for aircraft is treated against corrosion by sea-water) calls for peculiar care.

It has been found that *mineral oil* is slightly bacteriocidal towards the *Staphylococcus aureus*, the organism frequently associated with oil folliculitis. There is not, therefore, much reason for the fear that oil folliculitis will be disseminated in an engineering shop through the medium of the oil; the medium of infection is more likely to be the common towel. The generally accepted belief is, however, that the infection is autogenous and that the oil both acts as a vehicle and also over-lubricates the skin, causing increased activity of sebaceous glands, the two together resulting in a septic folliculitis. Some success has been achieved in the prevention of this type of dermatitis by the use, after work, of an antiseptic alkaline wash (Dakin's solution B.P.C.) which removes the oil more thoroughly from the skin than can be effected by ordinary methods. It is reasonable to assume that corresponding protection would be afforded if the workers could be prevailed upon to perform a surgical "wash up" before work.

Turpentine dermatitis is now of more than usual interest because the irritating properties of some everyday substances—such as oranges, lemons,[2] and celery [3]—have only recently been recognised as due to the same substance—i.e., limonene—which is itself a terpene. So nearly are lemon oil and turpentine related that the latter was at one time a common adulterant for lemon oil.[1] Orange oil and lemon oil consist of over 90 per cent. dextro limonene. Moreover, pinene, which is believed to be responsible for the irritant qualities of some turpentines, is not only very closely related to limonene but is itself present in lemon oil. There are four grades of turpentine:—

1. Gum spirits of turpentine, made from gum (oleoresin) from the living tree.
2. Steam distilled wood turpentine—i.e., steam distilled from oleoresin within or extracted from the wood.
3. Destructively distilled wood turpentine—the product of distillation of the wood and roots of tree.
4. Wood turpentine; this grade includes the product of (2) and (3).

The lower grades—i.e., (3) and (4)—are believed to be more productive of dermatitis.

Evidence has been produced to prove that steam distilled turpentines contain some ingredient susceptible of removal by fractional distillation, probably a saturated hydrocarbon in small amounts with a boiling-point somewhere between that of α pinene and dipentene, which is decidedly more irritating than the other constituents.

Of turpentine substitutes there are a number. The chief are rosin spirit (iodine value 90–180), shale spirit (60 per cent. paraffins and oleofines), petroleum spirit, coal-tar naphtha, and tetralin (tetrahydronaphthalene).

Although *dyes* figure monotonously in the list of causes, this classification probably includes some cases where cleansers are really at fault, for accurate information as to methods of removal of dyes from the skin is difficult to obtain. Paraphenylene diamine, although the cause of most cases of fur dermatitis [4] outside industry, and of "ursol dermatitis" which followed the wearing of badly dyed leather shoes during the war, does not figure largely in the cause list of industrial dermatitis.

BREAD, WOODS, AND BULBS

All the ingredients of *bread*—flour, improvers, salt, yeast—have been suspect as the cause of dermatitis.

In Australia work has been done on bakers' dermatitis within the last few years, and the conclusions reached were that flour improvers, chiefly ammonium persulphate, were to blame.[5] One man in twenty—fifty in all—were affected in dough making. The rash—vesicular papulo-erythematous in character—was present on the limbs and face. Cutaneous tests revealed sensitivity to ammonium persulphate, and removal of this activator practically abolished the incidence of the disease.

It is worth recording that the amount of ammonium persulphate used in England for the treatment of flour is less than that used in other countries. In England 6 g. and in other countries 10 g. is a usual amount of ammonium persulphate in 100 kg. of flour. A test for the presence of ammonium persulphate in flour may be made by spreading it smoothly with a spatula. A drop of neutral 15 per cent. KI solution will then show a positive result by brown stippling. An examination in this country of workers in the production of ammonium persulphate did not reveal instances of conditions resembling bakers' dermatitis. The flour milling industry went into the question very thoroughly and formed a dermatitis committee to report on the incidence of dermatitis within their province. The conclusions were that "workers in flour mills are affected to a less extent than the average population."

There is, it has been found, a definite relation between the occurrence of dermatitis and hand-kneading of dough. Dermatitis among bakers in this country may, it is suggested, be attributed to the physical reaction of contact—often long continued—of the skin with dough, which is hygroscopic. In the heat of the bakehouse sweat and sebaceous glands are active; the baker has in general a soft hyperidrotic skin. Maceration of the horn cells results in loss of the integrity of the natural protectors of the skin. Together with these changes coarse abrasions may readily be caused when the dried and hardened dough is removed, perhaps from a hypertrichotic surface, by the use of a rough sacking towel, or by the assistance of a blunt instrument.

How great a part in the original or subsequent attacks is played by protein sensitisation is worthy of consideration, but it is probable that the prevention of dermatitis among bakers lies in the preservation of

the normally protective horny layer of the epidermis with the avoidance of conditions favouring excessive sweating.

It is likely that dermatitis among bakers with the increasing use of mechanical methods resulting in little or no contact with flour and dough will become rarer, but until the condition is no longer met with, each instance is of importance, particularly to the baker himself, because of the often late age of onset and the marked tendency for recurrence.

Workers in certain *woods* share with bakers and some others this very marked tendency for recurrence of dermatitis. It is usual for dermatitis from woodwork to show itself soon after exposure first on the face and neck, with great swelling of tissues. The hands are generally affected later. Sweating is an important factor in causation.

Teak dermatitis is the best known, but other woods less well recognised, producing severe reactions, are Brazilian walnut[6] from which eleven cases occurred among 100 men, patch tests being positive; and Rumanian pine. This wood, used for soundboards of pianos, has been known to produce a severe case of dermatitis in a man aged 56. Rosewood from British Honduras for xylophone keys appeared to have produced typical attacks in two elderly men of experience, who had worked for many years with teak and boxwood without untoward effects. Dermatitis from East Indian satinwood (chloroxylon swietenia) has been the subject of exhaustive research by Cash.[7] The crystalline alkaloid, chloroxyline, the amount of which varied considerably in different specimens of satinwood, was found to produce in two out of three subjects an insidious and severe experimental dermatitis—whilst a resin present in the wood was found to be capable of arousing dermatitis in those who have been rendered abnormally susceptible by chloroxylonine action. Sennear[8] reviewing the question of dermatitis from woods has collected a number of interesting statements as to the nature of the irritants in wood. Non-saturated resinous acids and alkaloids, some of which have been isolated, are considered chiefly responsible by different authorities. In the case of the Tagayasan nut tree a substance allied to chrysarobin was identified.

Dermatitis from that group of chemicals used in the rubber industry to accelerate the process of vulcanisation—"*accelerators*"—is often severe.

Originally lead salts, inorganic salts, and hydroxides were used as accelerators, but in 1906 the value of the group of organic amines was discovered and substituted. To this group belong "hex"—hexamethylene tetramine (urotropin) and B.B. (montana syrup), the butyaldehyde condensation product of dimethyl-p-phenylene diamine—two accelerators which are known among others to have caused dermatitis. Accelerene is paranitrosodimethyl amine and has caused a number of cases. Trimethylamine is a slow accelerator, but it has the advantage of not discolouring rubber where light articles are being made. Dermatitis from its use, however, is reported from Australia.

Practical experience indicates that a chain of circumstances is generally required for the occurrence of more than an occasional case of dermatitis from accelerators. It seems likely that sweating and dry heat plays an important part in the occurrence of such cases, and that friction as well as heat is necessary. The results of experimental work suggest that the use of lotions consisting of the appropriate chemicals might be of value in preventing dermatitis from accelerators.

French polishers and stainers with the trend of fashion are using less bichromate than formerly. Dermatitis that occurs in this group of workers is more often attributable to the use of overstrong soda water to remove the stains from the skin. Experiments show that only ½ lb.–¾ lb. of washing soda to the bucketful of water (roughly two gallons) will remove the stains, but French polishers like to make the solution stronger to save time and then often neglect to rinse off the alkali.

A painter does not as a rule contract dermatitis from paint but from washing with turpentine or its substitutes. The application of cotton seed oil on the hands before using paint makes its removal simple and the same is true of printing ink.

A curious condition of peri- and hyp-onychial dermatitis was found in those constantly handling *flower bulbs*.[9]

It is at first sight curious that the tulip bulb should be the chief offender, for if friction were an important factor the bulbs of hyacinths, narcissi, and daffodils should be prominent. The tulip bulb is peculiar in that it is protected by a single-layered and rather delicate testa which readily splits and exposes the substance of the bulb. Long-nailed workers seemed more susceptible, and the expression of juice from the bulb substance has been found experimentally to produce dermatitis, without previous trauma, around the nails. This effect of handling tulip bulbs, judging from the interest and statements of the general public, seemed a rather common experience.

More recently the sequel to these observations has been studied. I had an opportunity of examining a large number of women cropping and packing spring flowers. The lesions found were of two groups—one, a sparse vesiculo-papular rash on the forearms, and the other, peri- and hyp-onychia. It seemed that the first was caused by handling daffodils and narcissi ("lily rash"), while the other was attributed to tulips. It is interesting to have evidence that the lesions produced by handling tulip bulbs are reproduced by the juices of the stalks of these flowers. Fatal cases of dermatitis, fortunately rare, are not unknown; one of these was a girl who, after apparent recovery from "lily rash," had a recurrence while handling tulips. Finally, while in contact with chrysanthemum plants, the skin condition became acute and septic infection brought about the fatal issue.

Conclusion

The recognition of dermatitis as of occupational origin owes much of its inspiration to a knowledge of the irritants actually encountered. Deductions may sometimes be made from the site of origin—for example, lime, sugar, metol, tulip juice, have a predilection for but are not all confined to the nail area. An irritating dust as opposed to a liquid will usually show itself first on the face and neck, as do certain wood dusts, copra dust, and barley. In the latter, *P. ventricosus* is the cause. Perhaps it will be the association with dermatitis of some other more characteristic lesions (chrome ulcers, salt, and lime holes) which will lead to the identification of the causal irritant. Here it may be remembered that formaldehyde, even in very weak solutions, as well as being a very potent cause of dermatitis, can produce a clean cut ulcer not unlike an early "chrome hole." Oil folliculitis is, of course, easy of recognition, but then it is not strictly a dermatitis. Many cases of dermatitis—especially those not of recent origin and those which have been treated—show no helpful individuality. The worker's description of his job is often quite unintentionally misleading. "Draughting in the limes" does not immediately suggest that there has been contact with tanning solutions; nor is it universally known that "wrapping dollies" is a process in the manufacture of dry batteries, in connexion with which manganese and carbon should be recalled. There are endless conundrums but their elucidation really depends on persuading the patient to describe what he does in his own words, which, if he is a technician, may be far from simple! So many and varied are the causes of industrial dermatitis that a study of this subject emphasises yet again the truth

of Bordet's words, "La vie est le maintien d'un équilibre incessament menacé."

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GLANDULAR FEVER AND INFECTIOUS MONONUCLEOSIS*

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(*Concluded from p. 186*)

Morbid Anatomy

FATAL cases of glandular fever are very rare, and usually have septic or other complications; but lymph glands have been removed at biopsy on many occasions. Two principal changes are recorded both of which may be present together. These are lymphoid hyperplasia, which is specially observed in glands removed in the early stages of the glandular type, and hyperplasia of the reticulo-endothelial tissues. The second has been emphasised in recent records, especially those of McLean, Pratt, and du Bois. Both Pratt and McLean's cases were of the febrile type with maculo-papular eruptions.

Pratt had two glands removed during his own attack. The first shows reduction of lymphocytes with hyperplasia of the reticulo-endothelium and numerous swollen cells with large, flat, pale-staining nuclei, which may be accepted as reticulo-endothelial cells. The second gland removed later shows mainly increase of fibrous tissue and scarcity of lymphoid tissue.

It has been suggested that the hyperplasia of the reticulo-endothelial cells is the cause of the appearance of plasma cells or monocytes in the blood. It may be doubted if the changes would differentiate these glands from non-specific lymphadenitis.

On the condition of the bone-marrow there is no satisfactory report.

The Blood Picture

ERYTHROCYTES

There is no change in the red cells and no anæmia in the ordinary course of the illness. The thrombocytes are not affected. During convalescence a slight secondary anæmia may slowly develop and persist for several months.

LEUCOCYTES

The characteristic manifestation is the development of an absolute lymphocytosis, but it will be shown that not only the lymphocytes but all the leucocytes are affected.

The total *number of leucocytes* usually does not exceed, or materially exceed, the higher limits of normal. The counts commonly lie between 6000 and 15,000 per c.mm., but there are numerous instances in which it has greatly exceeded this figure. Hueper, in a single case, records figures of 50,000 to 87,000, but the diagnosis is very doubtful. Stepp and Wendt are credited by Schwarz with a count of 80,000, but this is a misapprehension, for the highest figure in their article is 27,000. All counts of over 40,000 which I can find in the literature are given in Table I., and it will be seen that they are all in infants or young children. Both the lymphocytes and the polynuclears are increased. The highest number in my own experience is 35,000 in a child of six years, and 33,000 in an adult. There is no recorded case of over 40,000 in an adult. It may be accepted that in adults and children over seven years, figures over 20,000 are unusual, over 30,000 are rare, and 40,000 is the maximum. In infants and young children, 60,000 may be reached exceptionally, but it will be noted that 85 is the highest percentage of mononuclears in these cases. The high numbers together with extreme mononucleosis such as 99 per cent., which are common in lymphoid leukæmia, never occur in glandular fever.

TABLE I.—*Hyperleucocytosis*

Author.	Age.	Total leucocytes.	Mn. per cent.
Feer	1 year	63,000	81
de Bruin	1½ years	63,000	78
Nelken	4 ,,	58,000	59
Feer	1 year	54,500	64
Price	7 months	44,000	84
de Lange	10 ,,	41,200	85

Mn. = Mononuclears.

Morphology of Polynuclear Cells.—Examination of the nuclei shows frequently a "shift to the left"—that is, towards more primitive cells. This suggests a strain on the myeloid tissues of the bone-marrow. The marrow, however, cannot be exhausted or aplasic as it is capable of responding, at least temporarily, with a polynucleosis to an ordinary infection such as otitis media, or a stimulus such as milk injections. The eosinophils are stated by some authorities to be low in the early stages and high in convalescence, but from a study of the figures it does not seem possible to form any definite conclusions.

TABLE II.—*Glandular Type: Polynucleosis*

Author.	Age.	Glands palpable.	Day of blood count.	Leucocytes.	Pn. per cent.
Scheer ..	6 mos.	Onset	3	13,200	71
Tidy ..	9 yrs.	2	4	31,000	79
			7	27,500	78
			20	10,300	30
,, ..	9 ,,	Onset	2	15,600	76
			5	6,200	36
,, ..	10 ,,	,,	24*	19,000	73
Baldridge	19 ,,	,,	2	15,000	85
			9	6,400	73
			12	8,400	51
			21	7,700	37

* Relapse. Pn. = Polynuclears.

Polynuclear Cells: Polynucleosis.—A definite polynucleosis may be present in the prodromal and initial stages of the glandular type (Guthrie and Pessel, Scheer, Tidy). As an absolute lymphocytosis is the outstanding feature and usual criterion of glandular fever, it is important to note this. In the febrile and anginose types nothing is known of the blood at the onset. In the anginose type lymphocytosis has always been present by the time the faucial changes have developed:

* The Lumleian lectures for 1934, delivered to the Royal College of Physicians of London on March 15th and 20th.

In the glandular type in a boy under me, aged 12 years, at the first count, the leucocytes were 10,600 and the polynuclears 85 per cent. He complained of a sore-throat, but the glands had not enlarged at that time.

Although usually the polynucleosis disappears rapidly at the time of the glandular enlargement, it may sometimes, especially if severe, persist for a few days. Illustrations of polynucleosis at different ages are given in Table II., including one case during a recrudescence of the glandular enlargement. The case with 31,000 leucocytes and 79 per cent. of polynuclear cells was undoubtedly glandular fever.

Polyneucleosis only occurs in the initial stage, never developing during the course, and is always transient. The extreme instances of hyperleucocytosis given in the previous section also occurred early in the attacks, the numbers always subsequently falling.

TABLE III.—*Leucopenia and Neutropenia*

Author.	Age.	Bd. Ct. day.	Total leucocytes.	Polynuclears.	Mononuclears.	Glands day.	Clinical type.
Schmidhemy	34	12	2,000	8 (160)	92 (1840)	12	Febrile (jaundice)
		21	8,700	45 (3,900)	55 (4,800)		
		38	5,600	54 (3,000)	41 (2,300)		
Downey	22	6	3,000	—	—	—	Glandular
		7	4,500	13 (600)	86 (3,900)	1	
Glanzmann	2	1	3,000	42 (1,250)	58 (1,750)	1	Glandular anginose
		6	12,000	32 (3,900)	68 (8,100)		
Longcope	30	6	3,000	57 (1,700)	43 (1,300)	22	Febrile (and rash)
		7	3,400	60 (2,050)	40 (1,350)		
		16	9,800	44 (4,300)	56 (5,500)		
		22	8,800	29 (2,550)	71 (6,300)		
		32	7,800	32 (2,500)	68 (5,300)		
Glanzmann	1	3	3,000	25 (600)	75 (2,400)	1	Glandular
Becker	25	1	3,800	42 (1,600)	58 (2,200)	1	Glandular (and rash)
		15	12,000	25 (4,000)	75 (8,000)	1	
Glanzmann	4½	3	10,000	9 (900)	91 (9,100)	1	Glandular (and rash)
		4	6,300	4 (250)	96 (6,000)		
		10	7,000	9 (630)	91 (6,400)		
		16	6,500	27 (1,750)	73 (4,750)		
		31	8,000	24 (1,900)	76 (6,100)		

Leucopenia.—Low total counts below 4000 per c.mm. are rare, the recorded cases being given in Table III. The leucopenia occurs only at the onset or early in the attack; it never develops during the course, thus resembling the polynucleosis. It is essentially due to diminution of the polynuclear cells and the total number always rises later. The neutropenia is extreme in several instances. Clinically the course is often severe and atypical.

Extreme neutropenia may also occur with an absolute lymphocytosis, as in Glanzmann's case in Table III. All these cases recovered. Lymphopenia, an absolute reduction of mononuclear cells, is not recorded.

During convalescence, and often for long periods subsequently, a slight leucopenia is common. This is mainly due to reduction of polynuclear cells, and thus is associated with an increased percentage of lymphocytes.

Variations in Polynuclear Cells.—The polynuclear cells thus appear to react early to the virus, resulting in an initial polynucleosis or occasionally a neutropenia. In either event, at the end of a few days, the polynuclears tend to be at or somewhat below normal. Subsequently they vary round this figure.

Mononuclear Cells.—The lymphocytosis and the glandular enlargement usually develop together on or about the same day in all types. It may, however, precede the glandular enlargement by a day or two, while occasionally, as noted previously, an early polynucleosis may overlap the adenitis. The lymphocytosis may develop in the space of a day or two.

The lymphocytes reach their maximum at most a few days after the first development of lymphocytosis. The polynuclears may by that time have reached their minimum, so that the relative percentage of mononuclears becomes very high. The lymphocytes then commence to diminish, at first rapidly for a few days, and then more slowly. In Table IV. are examples of typical courses. No. 1 is a case of Sprunt and Evans. Nos. 2 and 3 were cases under me exhibiting an early normal count.

TABLE IV.—*Glandular Fever: Normal Course*

Case.	Age.	Illness day.	Total leucocytes.	Polynuclears.	Mononuclears.
1	21 yrs.	1	7,800	25 (1,950)	75 (5,850)
		4	18,800	23 (4,500)	77 (14,300)
		7	17,400	34 (6,000)	66 (11,400)
		8	10,800	39 (4,200)	61 (6,600)
		13	11,200	58 (6,400)	42 (4,800)
		18	8,200	54 (4,400)	46 (3,800)
		25	8,100	65 (5,300)	35 (2,900)
		36	9,800	71 (6,900)	29 (2,900)
		66	9,000	73 (6,600)	27 (2,700)
2	12 yrs.	2	5,200	63 (3,300)	37 (1,900)
		4	13,500	36 (4,900)	64 (8,600)
		25	11,000	52 (5,700)	48 (5,300)
		40	6,600	52 (3,400)	45 (2,800)
3	23 yrs.	6	6,800	64 (4,300)	36 (2,500)
		9	12,400	38 (4,700)	62 (7,700)
		14	11,200	24 (2,700)	76 (8,500)
		18	9,600	34 (3,200)	66 (6,400)
		26	6,800	52 (3,600)	48 (3,200)

The degree of lymphocytosis does not show any direct relation to the size of the glands, but in an individual case the lymphocytosis approximately follows the same course as the glands, and persists or falls with them. It has been known, in many cases, to persist over long periods, even several years.

The highest percentage of mononuclear cells recorded is 97·5. The leucocytes numbered 20,000 (Ireland). Figures of 99 per cent., such as occur commonly in lymphoid leukæmia, are never found. All percentages over 90 are rare; figures between 70 and 80 per cent. are common, but 60 and 70 per cent. are even more frequent.

The mononuclear cells appear to react less rapidly than the polynuclears and are little altered during what may be called the febrile stage. But with the occurrence of glandular enlargement, affection of the mononuclears is constant.

Morphology of Mononuclear Cells.—The mononuclear cells in glandular fever are extremely varied in type. With regard to their morphology the following general points may be stated:—

(1) The mononuclear cells are not myeloid in origin.

(2) Numerous types of abnormal mononuclear cells are usually present simultaneously. This is in marked contrast to lymphoid leukæmia.

(3) The predominant cell may be different in different cases; it may also change with great rapidity in the course of an individual case.

(4) Similar forms occur in all types of glandular fever.

The nature of some of the abnormal cells is difficult to decide. Observers are in substantial agreement as to their appearance and staining reactions, but differences arise as to their classification and origin, and as to whether certain cells are lymphocytes or "monocytes." A monocyte in this sense is a cell which we commonly call a plasma cell, the origin of which is supposed to be from reticulo-endothelium.

In the blood films grades of lymphocytes can be traced, varying more and more from the normal and approaching more and more to the characteristics of plasma cells. It cannot be said that a point can be fixed beyond which it is impossible for an abnormal lymphocyte to pass, and that all cells beyond it must be plasma cells. Certainly no two authorities would agree on the same point. I have carefully studied the cells in many cases of glandular fever and cannot recognise any criteria by which certain abnormal forms of lymphocytes and monocytes can be differentiated. Supravital staining (McLean, Wilson and Cunningham, Lawrence and Todd) unfortunately leaves one in doubt at exactly the same point as other methods.

Probably cells, typical and atypical, are present from both forms of tissues, and certain atypical cells of the two groups are indistinguishable. This accords with recent histological studies of glands which suggest stimulation both of the lymphoid and reticulo-endothelial tissues.

Classification of Mononuclear Cells.—The mononuclear cells occurring in glandular fever may be divided into three groups:—(1) Normal lymphocytes. Some normal cells are always present and may form a high percentage. As convalescence sets in there is a return to predominance of small lymphocytes. (2) Primitive lymphocytes. (3) Abnormal mononuclears.

Primitive Lymphocytes.—There are two common types, both of which are known as either "lymphoblasts" or "leucoblasts." (*a*) Large cells with clear, slightly basophilic cytoplasm. No azur granules. Vacuoles usually absent but occasionally present. The nucleus is pale, may be slightly irregular with fine chromatin and no nucleoli. (*b*) Large cells with cytoplasm distinctly basophilic, but staining irregularly. In the nucleus one or often more nucleoli are usually present; the chromatin is irregularly distributed, and the nucleus stains dark.

Abnormal mononuclear cells are of such varying types that one can only indicate the points on which they differ from the normal. Practically all combinations of such variations can be observed. (1) Size: larger than normal. (2) Shape of nucleus: may be round, oval, or bean-shaped, or may be markedly indented as in the Rieder cell or normal large mononuclear. (3) Chromatin of nucleus: no standard type; network often irregular. (4) Staining of nucleus: darker than normal. (5) Cytoplasm: stains more basophilic than normal. Vacuoles may be present, sometimes to a marked degree.

The commonest predominant cell is somewhat larger than a small lymphocyte; the cytoplasm is more basophilic than a normal large lymphocyte, and the nucleus is darker and indented.

Combinations of the variations classified above, in their advanced forms, give cells resembling (or identical with) normal or abnormal plasma cells.

BLOOD CHANGES IN FEBRILE TYPE

There is little knowledge as to the course of the blood changes in the early stages of this type. Table V. contains all the reliable examinations which I have been able to find. Many counts were made under a diagnosis of typhoid and were not repeated.

In Stage 2 there is slight but definite indication of lymphocytosis. In Stage 3 lymphocytosis invariably develops. Its subsequent course is the same as in the glandular type, but is more prolonged with the continuation of the pyrexia and enlarged glands.

TABLE V.—*Febrile Type: Typical Course*

Day of illness.	Author.	Age.	Rash (day).	Glands (day).	Bd. Ct. (day).	Total leucocytes.	P.M.N	Mn.
5–10	Longcope	30	5	22	6	3,000	57	43
					7	3,400	60	40
					10	5,400	54	46
	Mills	19	—	16	7	8,200	42	52
11–15	Mills	19	—	16	14	8,200	41	53
	,,	20	8	20	15	14,000	48	52
	,,	21	8	20	15	Normal		
	Benson	—	6	10	11	14,700	18	82
	Tidy	26	4	10	12	33,000	5	95
					14	32,000	6	94
16–20	Longcope	30	5	22	16	9,800	44	56
	Tidy	30	5	24	16	7,000	70	30
21–30	Mills	19	—	16	21	12,000	29	65
	Longcope	30	5	22	22	8,800	29	71
	Tidy	23	6	15	23	11,600	34	66
	,,	19	4	18	24	11,700	36	64
	,,	40	5	24	27	13,000	43	57
	,,	26	4	10	27	29,000	12	88

Atypical cases of the febrile group occasionally occur, in which the development of rash and glands are not in the usual order or stages. Blood counts from a few such cases are given in Table VI. The blood is as erratic as the clinical features but the general lymphocytosis accompanies the glandular enlargement.

TABLE VI.—*Febrile Type: Atypical Courses*

Author.	Age.	Rash (day).	Glands (day).	Bd. Ct. (day).	Total leucocytes.	Polynuclears.	Mononuclears.
Glanzmann	5	1	3	1	17,600	68	32
				3	7,000	30	70
,,	6	3	3	3	7,000	20	80
Tidy	14	3	1	2	8,600	68	31
				6	7,000	60	40
				18	13,500	46	53
Becker	25	15	1	1	3,800	42	58
				15	12,000	25	75
Rosenthal	26	11	10	11	11,600	35	65
Tidy	43	7	3	8	11,600	75	25
				19	8,700	62	38

BLOOD CHANGES: GENERAL CONCLUSIONS

The myeloid tissue is affected from the onset. It may react initially either by a polynucleosis or a neutropenia. In either case the total number quickly returns to about normal figures.

The lymphoid tissue appears to respond to the infection less rapidly, though finally to a greater degree. Both the type of cells and the morbid histology of glands suggest that all mononuclear cell tissue is affected.

The suggestion that the blood changes are due to the circulation being flooded with lymphocytes from the enlarged glands cannot explain the early polynucleosis, or the leucopenia with neutropenia, or such a count as 6000 leucocytes with 96 per cent. lymphocytes. It is evident that the virus of glandular fever transiently affects all the blood-forming tissues, and no single blood picture is typical of the disease.

Pathogenesis

The Virus.—Bacteriological examinations of the blood, glands, and emulsions of the glands have been uniformly negative except for a few results which may be ascribed to secondary invaders or contaminations. Nyfeldt's "Bacterium monocytogenes hominis" has not been confirmed. Spirochætes are not present. Streptococci and Vincent's organisms have been isolated repeatedly from the fauces but are not seriously considered as the cause.

With regard to animal experiments, only Bland's investigations are promising. During the 1930 epidemic he injected patient's blood into rabbits. Results were negative except when the blood was taken during the febrile period in the early stages. Such inoculations produced a rapidly fatal febrile disease, and could be transmitted to other rabbits. The infection could be transmitted to monkeys, in which it produced a disease with fever, enlargement of lymphatic glands, and a mononucleosis with primitive lymphocytes. A protozoon of the genus toxoplasma was identified. Toxoplasmosis is natural to many animals, including rabbits, but Bland states that this cannot be transmitted to monkeys. Unfortunately febrile cases are rarely diagnosed in the early stages, except during an epidemic, and Bland has had no opportunity of continuing this work. The question whether this is a specific toxoplasma remains undecided.

Heterophile Antibodies.—The presence of heterophile antibodies in glandular fever is a curious phenomenon discovered by Paul and Bunnell. The amount present in glandular fever was consistently and markedly in excess of that in any other condition examined, with the exception of one unclassified blood change. Sprunt states that these results have been confirmed at Johns Hopkins Hospital. Further investigations are required.

Diagnosis

Glandular fever is a febrile disease with general glandular enlargement and lymphocytosis. When the characteristics are present and recognised the diagnosis is easy. It may, however, be difficult or temporarily impossible before the characteristics have developed or in the presence of certain special features. The special difficulties are here discussed.

GLANDULAR TYPE

(1) *Acute Lymphoid Leukæmia.*—This is rarely difficult; in glandular fever the patient is not seriously ill, there is no anæmia, many types of mononuclear cells are present simultaneously, the total and differential counts do not reach the figures usually present in leukæmia, and recovery is rapid.

(2) *Sepsis and Mumps.*—In glandular fever there may be slight swelling of the skin over a mass of glands in the neck and polynucleosis may be present temporarily. In such circumstances there may be temporarily a close resemblance to sepsis or (except for the blood) to mumps at its onset. Definite œdema and a mass suggestive of sepsis or mumps does not occur, and the parotid gland is never affected.

There should be no confusion with tuberculosis, Hodgkin's disease, or syphilis.

ANGINOSE TYPE (MONOCYTIC ANGINA)

(1) *Diphtheria.*—Glandular fever angina differs clinically from diphtheria in the long prodromal period, the long febrile course which may occur, in the general glandular and splenic enlargement, and in its mild constitutional effects, and in the tendency to recurrences. In diphtheria there is an absolute polynucleosis increasing with the severity of the infection which never alters to a lymphocytosis.

(2) *Vincent's angina* does not cause a membranous condition or lymphocytosis.

(3) *Scarlet fever* produces a persistent polynucleosis. Rashes are practically unknown in anginose glandular fever.

FEBRILE TYPE

Diagnosis from typhoid and various fevers may be impossible until the glands and lymphocytosis develop.

The visceral types which have been mentioned are an obscure group. Diagnosis rests on the absolute lymphocytosis.

ERUPTIONS

(1) *Maculo-papular Eruption.*—The diagnosis clinically from typhoid may be temporarily very difficult.

(2) *Rubelliform Eruption.*—In rubella it is generally accepted that the leucocytes are below normal numbers and the plasma cells are especially increased, while glandular enlargement rarely includes the axillary group. Glanzmann believes that the diagnosis may be impossible.

It is possible that in the heterogeneous group of conditions, which Duke described as "fourth disease," are included cases of glandular fever.

BLOOD CHANGES

It is suggested that there is a closely allied group of "lymphotropic viruses" which produce lymphocytosis (Schwarz and Lehndorff). The group would include whooping-cough, mumps, glandular fever, and rubella; no doubt there are others, possibly Mossman river fever and Haberfeld's disease. The blood changes of glandular fever may approximate to agranulocytosis, which probably is not a single entity.

Treatment and Prophylaxis

Treatment is purely symptomatic. In simple cases of the glandular type the patient should be kept in bed until the temperature is normal and the main mass of glands has subsided. In prolonged febrile types some general exhaustion may develop and need nursing on the usual principles in pyrexial states. Attempts at specific treatment with intravenous injections of arsenical preparations or mercurochrome have proved valueless. Diphtheria antiserum is useless.

During convalescence tonics and iron are indicated. School-children often exhibit some degree of debility for six months or a year. They are fit for ordinary school routine but should not be unduly blamed for falling below their usual mental and physical standard.

Isolation should be carried out in accordance with the dictates of common-sense for a disease which is undoubtedly infectious, but only of a moderate degree of infectivity and with a favourable prognosis. It is clear that the infectivity is greatest in, and possibly even confined to, the first few days, and that children are more susceptible than adults.

With regard to schools it should be remembered that a single case with reasonable precautions rarely infects other members of a family household, but that two or three cases together in a school will commonly result in the infection of most of the children.

Conclusions

1. Glandular fever is an acute infectious disease, characterised by fever, glandular enlargement, and blood changes (especially mononucleosis), and sometimes by severe faucial changes. No age is immune, but children are most liable to infection.

2. Three principal clinical types can be recognised: (1) glandular or Pfeiffer's type; (2) anginose type (monocytic angina); (3) febrile type.

3. Suppuration of glands is very rare.

4. Eruptions are common in the febrile type and its variations. The usual forms are maculo-papular, resembling typhoid, and rubelliform, especially in children.

5. All blood-forming tissues are affected. The myeloid tissues tend to react more rapidly, producing initial transient polynucleosis or neutropenia. The lymphoid tissues react more slowly producing mononucleosis. The total leucocytes rarely exceed 40,000 per c.mm. but may reach 60,000 in young children.

6. The mononuclear cells are increased both relatively and absolutely. Numerous types of abnormal mononuclear cells tend to be present simultaneously. The abnormal cells may represent any or every type from lymphocytes to plasma cells (monocytes). The predominant cell may vary in different cases, and may alter in type in the course of an individual case.

7. The prognosis is favourable and the mortality in healthy subjects is negligible.

8. The virus is unknown but is probably transmissible to monkeys.

TWO CASES OF
BASOPHIL ADENOMA OF THE PITUITARY GLAND

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THERE is a certain inconstancy in the clinical features that are held to be characteristic of the condition described by Cushing (1932, 1933) as "pituitary basophilism." In his latter paper Cushing identified the syndrome in 14 cases with verified pituitary adenomata. In 4 of these the adenoma appears to have been other than basophil.

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Accepting the remaining 10 cases and adding the subsequently reported cases of Kepler et al. (1933, 1934) and of Craig and Cran (1934) it appears that the most constant clinical features are as follows: (1) adiposity of face and trunk (11 positive, 1 negative); (2) hirsuties (11 positive, not mentioned in 1—the only male subject); (3) amenorrhœa or impotence (9 positive, irregular menstruation in 1, hysterectomy had been performed in 2); (4) osteoporosis (9 positive, not mentioned in 3); (5) raised blood pressure (8 positive, not mentioned in 4); (6) striæ atrophicæ of the abdominal skin (7 positive, not mentioned in 5). A less constant feature is: (7) glycosuria (4 positive, 3 negative, not mentioned in 5). In Cushing's first paper he also notes as characteristic of the syndrome "a tendency to erythræmia, a count exceeding 5 millions having been present in five of the nine cases in which blood counts were recorded." Perusal of the case reports shows, however, that in two only did the red cell counts exceed 5 millions and in neither was a basophil adenoma demonstrated. In one of the proved cases of basophil adenoma the red cell count "approximated 5 millions" while in the rest it was either below this level or was "normal." Of subsequently reported cases there is a note of the blood count in 7. In 1 case only (Moehlig, 1932) did the red cell count appreciably exceed the range of 3,940,000 to 6,080,000 for normal women (Vaughan, 1934). In this the count was 6,850,000. In Craig and Cran's case the count was 6,190,000. In the other 5 cases it did not exceed 5,290,000.

The first of the following two cases is interesting not only as the second verified case in a male subject but also because several atypical features have emerged in the course of the examination. The second case, in a female, is of importance because so few of the features regarded as characteristic of the syndrome were present.

The First Case

CLINICAL

A male aged 31, a commercial traveller, was first admitted to the London Hospital on March 15th, 1932 (Reg. No. 30414, 1932, Med.), under the care of Prof. Arthur Ellis. He complained of intermittent headaches and occasional attacks of epistaxis during the previous three years. At the onset of these symptoms he had begun to get stout and his weight had increased in about twelve months from 69·85 to 84·82 kg (Figs. 1 and 2). The greater part of this increase in weight was, however, lost during the next two years, and by the time he came under our observation it was 73·48 kg. His wife had noticed that the adiposity was mainly about the face and abdomen. One year before admission he had noticed swelling of the ankles, shortness of breath, and nocturnal frequency. At this time he had been told that his blood pressure was high. Three months before admission he had begun to get severe morning headache associated with vomiting.

He was a married man but his wife had had no children and there had been no miscarriages. During the year before admission there had been impotence. He had never complained of any disturbance of vision, nor had he ever noticed any hæmaturia. At the age of ten he had been in hospital with enteric fever; the urine at that time was reported as clear.

On examination he was an obese, plethoric man with a red face and highly coloured mucous membranes. The distribution of hair and the external genitalia appeared normal. The adiposity was most obvious in the lower part of the face and in the abdomen; in the skin of the abdominal wall there were conspicuous striæ atrophicæ. There was no demonstrable œdema. The heart was definitely enlarged, the apex-beat being well outside the nipple line; the blood pressure was 210/140 mm. Hg. Examination of the fundi showed a well-marked albuminuric retinitis: "there was marked arterial thickening, multiple small retinal hæmorrhages, many small glistening patches, and also larger and softer patches of exudate" (Mr. Charles Goulden). *Urine:* persistent cloud of albumin; no macroscopic hæmaturia; a few leucocytes and red corpuscles with occasional granular and hyaline casts in deposit; specific gravity 1010 to 1025 with no tendency to fixation. The daily volume excreted varied up to 78 oz. *Renal function:* blood-urea, 0·036 per cent.; phenolsulphonephthalein, 19·1 per cent. in two hours; urea excretion, 73 per cent. of normal. *Blood count:* red cells, 5,600,000; hæmoglobin, 88 per cent.; colour-index, 0·78; white cells, 7000.

The patient was observed in hospital for five weeks. The combination of headache, obesity, and impotence suggested the possibility of an adenoma of the pituitary gland, but a radiological examination of the skull revealed no abnormality. The renal function tests were repeated several times and always yielded results within the limits of normal. A diagnosis of hyperpiesia was therefore made, the retinal changes suggesting a malignant hypertension. For a time he responded to treatment with luminal, venesection, and restricted diet. The blood pressure came down to 160/120 mm. Hg and his weight was reduced to 63·67 kg. After discharge he was seen at the nephritis clinic by one of us (H. E.) at frequent intervals during the following sixteen months. He continued to complain of headache, giddiness, and insomnia, and later of precordial pain, dryness of the mouth, and thirst. On one occasion only (Feb. 3rd, 1933) did he complain of pain in the back. The blood pressure remained round about 210/130 mm. Hg. Towards the end of July, 1933, the dyspnœa and precordial pain became more intense, and spontaneous purpuric hæmorrhages appeared in the skin of both legs.

On August 8th he was readmitted to hospital. *On examination* he was very distressed and dyspnœic. The tongue was dry and furred. There was no œdema. Large purpuric hæmorrhages were present in the skin of both legs. The blood pressure was 205/145 mm. Hg. Otherwise the physical signs were as before. There was no definite clinical evidence of heart failure. *Urine:* cloud of albumin; no macroscopic hæmaturia; specific gravity, 1005–1015; daily volume up to 49 oz. *Renal function:* blood-urea, 0·12 per cent.; phenolsulphonephthalein, a trace in two hours; urea clearance, 22·8 per cent. of normal. *Blood count:* red cells, 3,200,000; hæmoglobin, 30 per cent.; colour-index, 0·47; white cells, 5600. He was temporarily relieved by venesection but died in uræmia one week after admission.

SUMMARY OF NECROPSY

Nephritis repens with very great cardiovascular hypertrophy. Basophil adenoma of pituitary gland. (P.M., 351, 1933.)

Moderate general atheroma. Degenerations, necroses, and formative changes in arteries of kidneys, pancreas, suprarenal bodies, spleen, myocardium, and liver. A few focal areas of degeneration, necrosis, and hæmorrhage in suprarenal bodies, and of necrosis and interstitial fibrosis in pancreas, due to arterial changes. Œdema and post-mortem digestion of pancreas. Œdema, focal areas of engorgement, and slight chronic inflammation of pulp of spleen. Lipochromic and slight fatty degenerations of centres of lobules of liver. Partly organised vesicular hæmorrhages, œdema, and collateral emphysema in lungs. Many hæmorrhages (up to 5·5 × 4 cm.) in skin of trunk and limbs, especially legs. Many striæ atrophicæ in skin of abdomen. Excess of subcutaneous fat (up to 3·5 cm. thick) in abdominal wall. No excess of fat on limbs. Normal amount of hair of male distribution. No deformity of spine. Teeth sound. No abnormality in bones. Red, adipose-hæmopoietic marrow in ribs, vertebral bodies, and upper three-quarters of shaft of femur. Œdema of active testicles. Normal thyroid and parathyroid glands. Thymus obscured by adipose tissue. Œdema of brain. Mucous catarrh and congestion of stomach. Internal hæmorrhoids. Caseous tuberculous nodule (0·5 cm. diam.) in lower lobe of right lung. A few hæmangeiomata (up to 0·5 cm. diam.) in liver.

Weights: body, 60·84 kg. (height, 1·668 m.); heart, 687·5 g.; liver, 2239·6 g.; kidneys, 326 g.; spleen,

269·3 g.; brain, 1289·9 g.; pancreas, 83 g.; suprarenal bodies, 20·8 g.; testicles, 47·7 g.; thyroid gland, 16·75 g.; pituitary gland, 0·7 g.

MACROSCOPIC EXAMINATION

The *pituitary gland* was of normal size (1·4 × 1·15 × 0·9 cm. deep). The angle between the anterior and right borders of the gland was occupied by a projecting opaque creamy-white nodule (up to 0·6 cm. from side to side × 0·4 cm. from before back × 0·65 cm. from above downwards), which on section was greyish-white and sharply circumscribed. The posterior lobe was very small and was partly separated from the anterior lobe by a cyst (0·3 × 0·2 cm.) containing clear honey-like material.

The *kidneys* were of normal size with pinkish-red subcapsular surfaces, which were studded with yellowish and greyish-white granules and a few petechiæ. The cortex was narrow and its pattern blurred. The glomeruli appeared prominent. The demarcation of cortex from medulla was indistinct. The arcuate arteries were abnormally conspicuous. The *suprarenal bodies* were large but did not exceed the limits of normal as they represented 0·0341 per cent. of the body-weight (see figures in Leyton, Turnbull, and Bratton, 1931). The cortex contained abundant lipoid and a conspicuous pigment zone. No adenomata were seen. The medulla was scanty. Three *parathyroid glands* were identified. They measured: (1) 0·6 × 0·45 × 0·4 cm.; (2) 0·6 × 0·5 × 0·4 cm.; (3) 0·65 × 0·4 × 0·3 cm.

MICROSCOPIC EXAMINATION

The pituitary gland was divided horizontally into two parts, embedded in paraffin and sectionally serially. The first sections were stained with Ehrlich's hæmatoxylin and eosin, Weigert's iron hæmatoxylin and van Gieson's mixture, Weigert's fuchselin and neutral red. The remaining sections were stained with Mallory's acid-fuchsin aniline-blue. Other tissues examined were as follows: parathyroid, thyroid, pineal, and both suprarenal glands; thymus, testis, tail of pancreas, both kidneys, lung, myocardium, spleen, liver, skin, marrow of femur, lumbar lymphatic gland, cervical sympathetic ganglion, and arch of aorta. The staining methods used were the first three of those enumerated above. Portions of the fifth rib, head and shaft of femur, and a lumbar vertebra were decalcified in Müller's fluid for three months followed by 0·5 per cent. nitric acid in 4 per cent. saline formaldehyde. Herxheimer preparations for fatty substances were made of spleen, both kidneys, liver, myocardium, left suprarenal gland, and aorta.

The pituitary gland.—The nodule in the anterior lobe is a mass of basophil cells enclosed by a zone of stout collagen fibres (Fig. 3). The cells are of approximately normal size. In many places their borders are indefinite and the appearance is suggestive of a syncitium. Some of the cells have two or three nuclei. The cytoplasm of nearly all the cells is crowded with coarse basophil granules. The few cells in which these granules are absent are the smallest; they cannot be distinguished from ordinary chromophobe cells. The rest of the gland appears normal. A cyst, filled with hyaline eosinophil material and lined with a low cubical epithelium, occupies the pars intermedia and projects into the posterior lobe. The posterior lobe is small and contains a few groups only of basophil cells in the part that abuts on the pars intermedia.

The kidneys show an advanced stage of chronic Bright's disease of the kind that has been designated by one of us (Russell, 1929) as nephritis repens, type 4. The vascular changes in these and in the other organs of the body will be dealt with in a future paper; we believe them to be an association of toxic nephritis.

The lungs.—In portions of the upper lobes of the right and left lungs that had shown ill-defined finely granular areas of consolidation to the naked eye large groups of bronchioles, alveolar passages and infundibula contain red corpuscles and fibrin. The margins of these plugs of exudate are occasionally infiltrated with fibroblasts, and in a few respiratory bronchioles the whole plug is replaced by fibroblasts and collagen fibrils. Elsewhere the vesicular tissue contains albuminous coagulum or is distended by emphysema. There is no general congestion of the grade seen in "back pressure" lungs. There are no recognisable abnormalities in the blood-vessels.

Petechiæ in skin of chest.—A mass of red corpuscles and relatively abundant fibrin lies in the lower margin of the dermis. There are no recognisable abnormalities in the vessels.

Endocrine glands.—The cortex of the *suprarenal bodies* is loaded with lipoid. The normal pattern of cortex and medulla is preserved except where, in the cortex, focal areas of degeneration, necrosis, and hæmorrhage result from lesions of the capsular arterioles. Dr. H. W. C. Vines has kindly stained a section by his ponceau-fuchsin method (Broster and Vines, 1933) and finds that the reaction is negative. The islets in the tail of the *pancreas* appear unaltered. A few focal necroses and areas of increase of collagenous stroma in other parts of the gland are referable to the vascular changes present. In the *testis* spermatogenesis is in active progress and spermatids and spermatozoa are numerous. There is great rarefaction of the interstitial tissue by œdema. The interstitial cells are sparse and scattered in small groups. Almost all the vesicles in the *thyroid gland* contain colloid and many are considerably distended therewith. There is very little sign of active secretion. The *thymus* is represented by slender branching cords of thymic reticulum. These contain a very few Hassal bodies and several calcareous spheres, and are expanded in a very few spots by small focal areas of lymphoid infiltration. The *pineal and parathyroid* glands appear normal.

Bones.—There was no abnormality in the histological structure of the bone. Adipose tissue is in considerable excess of hæmopoietic in the red marrow of the femur, but in slight minority in the rib and vertebra. The hæmopoiesis is normal in character.

The Second Case

CLINICAL

A married woman of 33 was admitted to the London Hospital in coma during the night of Jan. 19th, 1934, shortly after the onset of a stroke (Reg. No. 40122, 1934, Med.). She was very obese, the fat being of general distribution and not sparing the limbs. Respiration was stertorous. The left pupil was first contracted but later dilated and fixed. The right pupil was dilated and fixed. There was weakness of the right side of the face. An extensor plantar reflex was obtained on the right side. The systolic blood pressure was 240 mm. Hg. Blood-stained fluid was obtained by lumbar puncture. Death took place 90 minutes after admission. The clinical diagnosis was cerebral hæmorrhage.

The husband said that obesity dated back to school-days when the patient had been nicknamed "Fatty." He produced photographs of her at the ages of 14 and 16 in confirmation of this. They had been married ten years and there had been three pregnancies. The first child, born nine years ago, was premature at seven months and died a few days after birth. The second child, born seven years ago, is alive and well. The third pregnancy, four years ago, was terminated between the fifth and sixth months in Guy's Hospital by Cæsarean section. Sterilisation was also carried out. Since that time the menses had been regular to within a day or two of the month, and the patient had led an active, normal life. She did not complain of any symptoms such as headache or backache. Photographs at different periods of her married life showed a physical appearance closely resembling that at the time of death.

Through the kindness of Mr. J. B. Blaikley, obstetric registrar at Guy's Hospital, the following particulars have been obtained concerning the patient's obstetric history. The first two pregnancies had been complicated by œdema and albuminuria. She was said to have been blind for three days at some period during the first pregnancy and to have had mistiness of vision during the second. On Oct. 21st, 1929, she attended her private doctor at the fifth month of her third pregnancy complaining of headache, swelling of the ankles, and nocturia. On Oct. 29th she was admitted to Guy's Hospital where she was found to have œdema and albuminuria. The blood pressure before operation varied from 200/160 to 175/128 mm. Hg. Blood-urea: 0·023 per cent. Urine: albumin from 6 to 15 Esbach units; no macroscopic blood nor pus; numerous hyaline and granular casts in the

deposit. A catheter specimen (Oct. 30th) showed a few epithelial cells and occasional leucocytes in the deposit. On Nov. 7th abdominal hysterotomy and sterilisation was performed. Her subsequent progress was good. The blood pressure fell to 130/85 mm. Hg on Nov. 12th, and at this time there was only ¼ Esbach unit of albumin in the urine. Subsequent daily readings showed, however,

FIG. 1 (Case 1).—The patient five years before his illness.

FIG. 2.—Appearance at the height of adiposity.

a steady rise of blood pressure and on Nov. 26th she was discharged with a trace of albumin in the urine and a blood pressure of 164/130 mm. Hg.

SUMMARY OF NECROPSY

Pontine hæmorrhage. Cardiovascular hypertrophy. Hyperpiesia. Basophil adenoma of pituitary gland. (P.M., 30, 1934.)

Extension of hæmorrhage in pons to cavity of fourth ventricle and along right crus to lower part of right internal capsule. Great hypertrophy of heart, especially of left ventricle. Moderate general atheroma. A few scattered fat flecks in cerebral arteries. Congestion and slight ischæmic fibrosis of kidneys. Congestion of lungs. Diffuse congestion and œdema of liver. Slight microscopic infiltration of portal systems with small lymphocytes and eosinophil leucocytes. Œdema and congestion of spleen. Œdema, congestion, and extensive post-mortem digestion of pancreas. Post-mortem digestion of body of stomach. Slight chronic cystitis and hypertrophy of urinary bladder. A few fibrous pleural adhesions over middle of outer surface of right lung. Obliteration by fibrous tissue of terminal 7 cm. of 9 cm. appendix. Scar of old Cæsarean section in body of uterus. Scar in left side of external os. Operative removal of Fallopian tubes. Graafian follicles and follicular cysts in ovaries; recent corpus luteum in left ovary. No abnormality in bones. Red marrow (sinks) in upper half and (floats) in remainder of shaft of femur except lower ninth; red marrow in ribs and sternum. Abundant hair over central third of abdomen between umbilicus and pubis, and on upper anterior and inner aspect of thighs. Short black hair in axillæ. Moderate amount of short dark hair on upper and lower lips. Broad black eyebrows. Numerous striæ atrophicæ in skin of lower abdominal wall. Slightly raised melanoma (0·4 cm. diam.) on outer aspect of left thigh. Very fat, black-haired woman with full round face and no obvious plethora.

Weights: body, 84·48 kg. (height, 1·524 m.); heart, 567 g.; liver, 1410·4 g.; kidneys, 318·9 g.; spleen, 233·9 g.; brain, 1452·9 g.; pancreas, 102·3 g.; suprarenal bodies, 14·9 g.; ovaries, 30·8 g.; thyroid gland, 37·3 g.; pituitary gland, 0·9 g.

MACROSCOPIC EXAMINATION

The *pituitary gland* was large (1·3 × 1·4 × 0·75 cm.), but not abnormally so for a multipara. On section the anterior lobe appeared relatively large in comparison with the posterior lobe and had a smooth terra-cotta cut surface. No adenoma was recognised with the naked eye.

The *suprarenal bodies* were of normal size, representing 0·0176 per cent. of the body-weight. The cortex contained abundant lipoid and a conspicuous pigment zone. Two or three pinhead cortical adenomata were present in the capsule of the left suprarenal body. The *thyroid gland* appeared to be somewhat bulky and showed a glistening cut surface. The *thymus* contained a moderate amount of visible glandular tissue embedded in a large amount of fat. Three *parathyroid glands* were identified (left upper: 0·7 × 0·4 × 0·15 cm.; left lower: 0·6 × 0·5 × 0·75 cm.; right upper: 0·5 × 0·4 × 0·15 cm.). The *uterus* was rather large. The body was 5·5 cm. long, the cavity 4 cm. wide, and the wall from 1·2 to 1·5 cm. thick; the cervix was 4 cm. long. A narrow scar, 2·5 cm. long, occupied the fundus and upper part of the anterior wall. The endometrium was pale yellowish-white, soft, and up to 0·3 cm. thick. The *ovaries* were rather large (left: 4·5 × 3·3 cm.; right: 3·7 × 3 cm.) and showed an abundant fibrous stroma containing numerous follicular cysts measuring up to 0·4 cm. diam. A hæmorrhagic corpus luteum (2·3 × 1·3 cm.) with a lutein zone, 0·2 cm. broad, was present in the left ovary.

MICROSCOPIC EXAMINATION

The pituitary gland was treated in the same manner as in Case 1. Portions of the following tissues were embedded in paraffin: liver, both kidneys, spleen, suprarenal body, thymus, thyroid and parathyroid glands, carotid bodies, body of pancreas, both ovaries, upper lobe of left lung, left basal ganglia, right pectoral muscle, body of uterus, trigone of urinary bladder, and marrow from right femur. Portions of rib, great trochanter, and sternum were decalcified in Müller's fluid for three months followed by 0·5 per cent. nitric acid in 4 per cent. saline formaldehyde. The same stains were employed as in Case 1. Sections of the liver, both kidneys, spleen, pancreas, suprarenal body, right pectoral muscle, and left basal ganglia were cut on the freezing microtome and stained with Scharlach R and hæmatoxylin.

The pituitary gland.—Near the centre of the upper half of the anterior lobe is a sharply defined spherical adenoma measuring 1·5 × 1·2 mm. in the horizontal plane and about 2 mm. in the vertical plane (Fig. 4). It is not encapsulated but the surrounding acini are compressed. The cells are well preserved and are typical basophil cells of the same size and shape as those of the surrounding gland.

FIG. 3.—Basophil adenoma at antero-lateral border of anterior lobe. Acid-fuchsin aniline-blue (× 13).

In the margins of the upper and lower poles of the adenoma a few acidophil cells are mingled with the basophil, and the outline of the tumour is here rather poorly defined. The remainder of the anterior lobe presents no obvious abnormality. It is not possible, on inspection, to detect any disturbance in the relative proportions of the three types of cell present. The posterior lobe is intact and is relatively small. There are a few minute areas adjacent to the pars intermedia in which the tissue is occupied

by small groups of basophil cells. A somewhat larger group is present near the deep surface of the posterior lobe (Fig. 5); it is not, however, of abnormal dimensions.

The kidneys.—A moderate degree of ischæmic nephritis with none of the inflammatory changes typical of Bright's disease is present. In the lumina of some of the tubules and in the interstitial tissue of the cortex are rather abundant deposits of amorphous hæmatoxyphil material which blackens with the silver nitrate method of von Kossa and is negative to the Prussian blue test. These deposits are probably, therefore, of calcium.

The endocrine glands.—In the *suprarenal body* the normal pattern of cortex and medulla is preserved. The cortex is not hypertrophied. There is much lipoid in the zona fasciculata. One minute cortical adenoma is present in the capsule. In a section stained with acid-fuchsin aniline-blue, after mordanting with potassium bichromate, there is a very scanty amount of fuchsinophil material in the cytoplasm of a few of the cells in the innermost layer of the cortex. There is extensive post-mortem digestion, but no further change in the parenchyma of the *pancreas*. The islets show post-mortem degeneration but no fatty changes. The lobules of the *thyroid gland* contain many large, often very large, vesicles which contain colloid but very rarely show any flattening of their epithelial lining. Among these are numerous small vesicles which contain a little colloid, or are empty, or are filled with epithelial cells. There are a few areas of lymphocytic infiltration. The appearances are those of exceptionally active secretion and storage of colloid. The *thymus* consists of small, but definite, lobules of thymic reticulum with numerous focal areas of lymphoid infiltration, which form an interrupted cortex. There are many small Hassal bodies in the medulla. The *parathyroid glands* and *carotid bodies* appear normal. Both *ovaries* show corpora fibrosa and Graafian follicles in various stages of maturation. The corpus luteum in the left ovary contains red corpuscles and fibrin and has a deep, well-defined border of lutein tissue. A loose net of collagen fibres and fibroblasts occupies a narrow zone in the margin of the clot. The *endometrium* is deep. The tubules are large and slightly tortuous. In the outer three-quarters the stroma is rarefied and its spindle cells are slightly rounded.

The *bones* are normal in histological structure. Hæmopoietic marrow occupies about an equal area with adipose

FIG. 4.—Basophil adenoma in anterior lobe. Note compression of surrounding acini. Acid-fuchsin aniline-blue (× 13).

in the centre of the shaft of the femur, but is in moderate excess in the rib and sternum. The hæmopoiesis is normal in character.

Discussion

Two cases have been described in which a basophil adenoma of the pituitary gland was suspected at necropsy on account of the physical appearance of the subjects and the presence of a conspicuous degree of cardiovascular hypertrophy.

In the first case a full clinical investigation had caused attention to be centred upon the cardiovascular and renal systems. The possibility of a

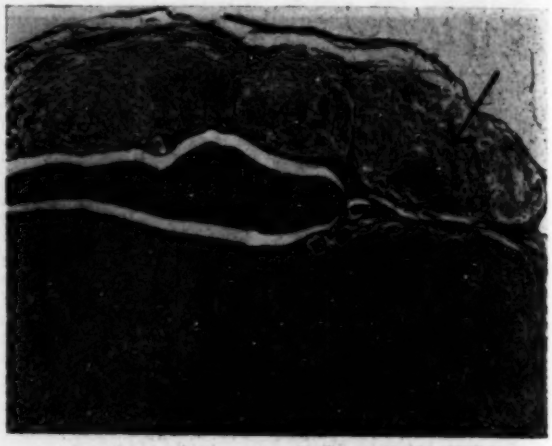

FIG. 5.—Arrow shows largest area of inversion of posterior lobe by basophil cells. Acid-fuchsin aniline-blue (× 13).

pituitary tumour had been considered at an early stage of the illness on account of the severe headache, obesity, and impotence, but was abandoned when the radiological examination proved to be negative. After that the case was regarded as one of essential hypertension. Finally, the finding of albuminuric retinitis suggested the presence of a malignant hypertension (nephritis repens), and this suspicion was later justified by the manner of his death. In retrospect several of the principal clinical features of Cushing's syndrome could be identified in this case: the obesity of peculiar distribution associated with abdominal striæ, hypertension, plethora, skin hæmorrhages, and impaired sexual function. The obesity was, however, transitory. The skin hæmorrhages were terminal and were doubtless due to the nephritis, of which they are frequently a feature. Certain changes claimed as part of the syndrome were lacking—namely, osteoporosis and skeletal deformities, glycosuria, and hypertrichosis. These, however, are known to be inconstant in examples of pituitary basophilism.

In the second case repeated albuminuria of pregnancy was associated, at least in the third and last pregnancy, with raised blood pressure without nitrogen retention. Cardiovascular hypertrophy, obesity, and a moderate degree of hypertrichosis were the only physical features that can be associated with the pituitary adenoma. The husband's information made it clear, however, that the obesity had been present for at least 19 years. This and the observation that the fat was of general distribution over trunk and limbs are deviations from Cushing's syndrome in which the fat is rapidly acquired at a shorter period before death and spares the limbs. Abdominal striæ were present but may have been due to the previous pregnancies. There was no amenorrhœa. The patient led an active cheerful life and complained of no aches and pains. All that remains of Cushing's syndrome here then is the combination of cardiovascular hypertrophy and a moderate degree of hypertrichosis of masculine distribution with an obesity that did not conform to the distribution typical of the syndrome.

In the first case cardiovascular hypertrophy and chronic Bright's disease formed the most conspicuous part of the pathological anatomy and were undoubtedly the cause of death. The second was a straightforward case of cerebral hæmorrhage secondary to cardiovascular hypertrophy. For a woman of such short stature the hypertrophy was very great. The renal changes here were of pure ischæmia—that is, they were secondary to the vascular degeneration present in the kidney and there was no trace of the histological characteristics of true Bright's disease.

In the pituitary gland alone of the endocrine organs was there an abnormality common to both cases. In the second case the thyroid gland showed an exceptional degree of activity, the appearances resembling those of the hypertrophy of puberty. In the 12 published cases accepted as examples of basophil adenoma the condition of the thyroid gland was described as "colloid goitre" in 1, "early colloid goitre" in 1, "moderately enlarged" in 1, and "slightly enlarged" in 2. In our second case also, the woman of 33, the thymus was sufficiently developed for the glandular tissue to be visible to the naked eye. No significance can, however, be attached to this, because a similar or greater development is found in a considerable proportion of women who have died between the ages of 25 and 35 from various causes. In the 12 accepted examples of basophilism there is only one record of a thymus which appears to have been of exceptional development. In a woman of 20 the gland weighed 24 g. (Teel, 1931). It is not stated whether it was entirely glandular but the microscopic description suggests that it was. Various proportions of glandular tissue are recognisable with the naked eye in the thymus in nearly half the necropsies upon women of 19 to 21. In a review of 80 deaths from various causes other than Graves's disease during these ages, only 3 glands were described as entirely glandular, and the weights were 8·3, 10·9, and 23 g. The latter gland occurred in a woman of 19 who died from broncho-pneumonia. An "almost completely glandular" thymus weighing 22 g. was found in a woman of 20, killed by an accident. From the available data, therefore, an entirely glandular thymus of 24 g. at the age of 20 would appear to be exceptional and possibly significant.

The rarity of enlargement of the thymus in basophilism is remarkable in view of the very similar clinical syndrome of Leyton, Turnbull, and Bratton (1931) and Kepler (Case 4, 1933). In this syndrome neoplasms of the thymus were associated with plethora, hirsuties, adiposity of similar distribution to that in basophilism, diabetes, hypertrophy of the suprarenal cortex, and hyperactivity of the thyroid gland, while serial microscopic section revealed no abnormality in the pituitary gland.[1] Cardiovascular hypertrophy was found at necropsy in one case and the blood pressure was abnormally high during life in another. The ribs were friable in Kepler's patient.

In both the cases here reported the suprarenal bodies were well within the limits of normal weight (Leyton, Turnbull, and Bratton, 1931). There were no cortical adenomata in the first case and a few pinhead adenomata only in the second. In three also of the verified examples of basophilism reported in the literature (Bauer, 1930, Bishop and Close, 1932, and Kepler, 1933, 1934) the suprarenal bodies were of normal size. It seems legitimate to assume from these five cases that the suprarenal cortex plays a secondary part in the syndrome. In both our second case and in Bauer's case the pituitary adenoma was very small. It might therefore be argued that cortical hypertrophy occurs only when the adenoma has attained a certain size. The adenomata, however, in our first case and in the Bishop-Close case were relatively large and the suprarenal bodies here too were of normal size.

In view of the recent, and apparently paradoxical, claim of Cushing (1932) that the basophil cells are closely linked with the gonadotropic hormone of the pituitary gland and that adenomata of these cells consequently lead to sexual dystrophy, it is noteworthy that in our first case the testicles showed active spermatogenesis in spite of the history of impotence, while in our second case there was no irregularity of menstruation and at necropsy the sexual organs were of full size and of normal histological appearance. Graafian follicles were present in both ovaries and a corpus luteum in one. This second case offers some analogy to Teel's case in which a small adenoma, 2·5 mm. diam., was found on serial section. Menstruation had been irregular, but a corpus luteum was present in one ovary. Both Teel's adenoma and that discovered in our second case were therefore relatively small, and it might be argued that they were too small to produce any gonadal disturbance. But in Bauer's case the adenoma was even smaller (0·9 × 0·5 mm.) and amenorrhœa was included among the typical features of the syndrome. Gonadal disturbance does not appear, therefore, to be correlated with the size of the adenoma.

From a study of the blood picture and tissues in Case 1 erythrocythæmia can certainly be excluded, whilst the tissues in Case 2 show no appreciable degree of erythrocythæmia. In neither of our two cases did the bones present any macroscopic or microscopic evidence of osteitis fibrosa or any other abnormality.

Our two cases, considered in conjunction with those reported elsewhere, suggest that the correlation between basophil adenoma, obesity, and persistent high blood pressure is very close. They show that the correlation, if it exists, is between basophil adenoma and high blood pressure as such, and not between basophil adenoma and chronic Bright's disease. This point is stressed because MacMahon, Close, and Hass (1934) have recently described the changes of malignant nephrosclerosis in two verified examples of basophil adenoma. Through the kindness of Drs. Close and Bishop one of us (D. S. R.) has been able to examine histological preparations of the kidney in the Guy's Hospital example. The similarity between this and the kidney in our first case is very striking. Further work is needed to show whether basophil adenomata can also be demonstrated in types of chronic Bright's disease with secondary cardiovascular hypertrophy other than malignant nephrosclerosis (nephritis repens, type 4), a form of nephritis in which the degree of cardiovascular hypertrophy is often maximal. Both Kraus (1928) and Berblinger (1932) claim that an increase in the number of basophil cells is demonstrable in a large percentage of all cases of hypertension. According to them the increase is diffuse and they do not describe discrete masses of these cells in either the anterior or the posterior lobes. They do not appear to have made any differential counts of the cells in the anterior lobe in support of their claims. The nature

[1] Serial sections of the pituitary gland in the two cases of Leyton, Turnbull, and Bratton were made after the original publication. (See Kepler, 1933, p. 103, and Cushing, 1933, p. 519.)

of the relation between the basophil cells and the cardiovascular system is as yet unknown.

In recent papers Cushing (1933, 1934) suggests that basophilic invasion of the posterior lobe may be potent in producing the features of his syndrome as well as the clinical conditions of eclampsia and essential hypertension. He was led into putting forward this suggestion by finding, in addition to a basophil adenoma, an extensive infiltration of the posterior lobe with basophil cells in a fatal case of his syndrome. In neither of our two cases was the amount of such infiltration as great as is often found in normal subjects. Fig. 5 shows the largest area present—Case 2.

Summary

(1) The clinical and pathological features are described of two cases of basophil adenoma of the pituitary gland. (2) The syndrome described by Cushing as "pituitary basophilism" was imperfectly manifested in both examples, especially in Case 2. (3) The salient feature in both was cardiovascular hypertrophy. Obesity was present in both, but was of atypical distribution in Case 2. In the female there was moderate hypertrichosis of masculine distribution. (4) Bright's disease was the cause of death in Case 1, but in Case 2 cerebral hæmorrhage complicated essential hypertension and primary ischæmic nephritis of moderate degree. (5) In neither of our cases was there any abnormal invasion of the posterior lobe by basophil cells. (6) The association between basophil adenoma and cardiovascular hypertrophy is emphasised, but the nature of the association remains obscure.

Our best thanks are due to Prof. H. M. Turnbull for his help in preparing this paper, and to Drs. W. W. Woods and A. B. Bratton for the necropsy reports.

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BAD NAUHEIM: INTERNISTEN CONGRESS.—Over a hundred people took part in the Internisten Congress held recently in Bad Nauheim, among them being doctors from Spain, Sweden, Bulgaria, and Japan. The visitors were received by Dr. Diehl in the name of the Reichsstatthalter. The director of the Balneological Institute demonstrated some heart sound films, showing that by modern methods it is possible to find out changes of heart sounds much more exact than formerly, the changes being laid down in a curve, so that the improvement or deterioration in the course of a year can be observed. The guests also visited the William Kerckhoff Institute, where the director, Prof. Koch, explained to them the working methods employed for the investigation of cardiac disease. Entertainment at the Johannisberg concluded the visit.

SOME POINTS IN THE TREATMENT OF RHEUMATIC DISEASES*

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THE infective origin of rheumatic fever and rheumatoid arthritis is now generally admitted, but the precise mode in which the infective agent sets up the disease is believed to be much more complex than was supposed. While some strain of hæmolytic streptococcus probably plays an important part it seems probable that other organisms may be capable of producing a symptom complex clinically indistinguishable from that attributed to the streptococcus, or may be associated with it. Gibson and Thomson [1] after a searching investigation arrived at the following conclusions: "Acute rheumatism is due to some infective agent not yet defined, whose entry into the body may be facilitated by infection with hæmolytic streptococci. A possibility is that the late allergic manifestations of streptococcal infection may damage the tissues susceptible to rheumatic infection and facilitate generalisation of the specific agent." Continuing, they say: "Such a theory correlates (1) the close epidemiological association of the hæmolytic streptococci with acute rheumatism, and (2) the widespread distribution of hæmolytic streptococcal infection and the comparatively limited distribution of acute rheumatism."

These observations apply with equal appropriateness to rheumatoid arthritis which is undoubtedly due to some infective agent not yet precisely identified, whose entry into the joints may be rendered possible by allergic effects set up by a focus of infection elsewhere either by the same microbe or by others. In expressing this view I am not unaware of the work of Cecil, Nicholls, and Stainsby [2] among others who have isolated from the blood by culture a streptococcus, and claim to have set up arthritis by its inoculation into animals.

INFECTION AND HYPERSENSITIVENESS

In a large proportion of cases of rheumatoid arthritis a septic focus can be discovered. From such a focus absorption of toxic bacterial products goes on, and the toxins gradually sensitise the tissues until a point is reached at which rheumatic symptoms develop—whether by reason of the further action of the toxins themselves or by actual bacterial invasion has yet to be demonstrated. It follows that the septic focus should be removed at as early a stage as possible if it can be identified, but never in such a way as to flood the system with toxins; for an acute outbreak of arthritic symptoms has not infrequently been known to follow wholesale extraction of teeth or tonsillectomy. A course of desensitising treatment by means of minute doses of a suitable vaccine may serve to avert such a catastrophe.

In such septic foci usually several different microbes are found, and even though it may some day be proved that certain types of arthritis are invariably associated with the presence of one definite organism, it is probable that the toxins of some prepare the way for others. Swift, Derrick, and Hitchcock,[3] who have done much important work on this subject, state that inoculation with non-hæmolytic strepto-

* Abstract of a lecture given before the Furness Division of the British Medical Association.

cocci produces a hyperergic condition and increased susceptibility, not only to the same strain but also to more distantly related strains; possibly, one may add, to entirely different microbes also.

The view has long been held on the continent that there is a type of rheumatoid arthritis which is tuberculous in origin but much of the evidence has been unconvincing. Positive reactions to such tests as those of von Pirquet and Mantoux may easily be due to latent tuberculous foci in glands or elsewhere, and the isolation of tubercle bacilli from the blood in cases of acute polyarthritis by the method of Reitter and Lowenstein has generally been unsuccessful in other hands. Recently, however, some cases have been published in which affected joints diagnosed clinically as rheumatoid arthritis have been opened and synovectomy has been performed, histological examination has demonstrated tuberculosis, and culture has in some cases been successful.[4] In two cases of my own of chronic polyarthritis I have found tubercle bacilli in the effusion from the knee-joints. It is stated that in some cases filter-passing types of the bacillus of Koch of low virulence have been isolated, which on inoculation into guinea-pigs have set up a tuberculous adenitis but not a general tuberculosis.

It cannot be denied that the constitutional type, and the symptoms apart from the actual arthritis, in many cases are similar to tuberculosis. There is also the possibility that a chronic tuberculous focus in the glands or elsewhere can sensitise the tissues to and thus favour infection by streptococci, but it seems more probable that the sensitisation of the tissues is set up in the first case by streptococcal infection and infection by tubercle follows.

The sensitisation of the tissues brought about by the absorption of toxins from a focus elsewhere in the body is of great importance, inducing an allergic condition. Rich[5] defines allergy as that state of specific hypersensitivity which develops as a result of the entrance of foreign protein into the tissues—with local tissue damage wherever the foreign protein or a fraction (haptene) lodges in the sensitised tissue, and constitutional symptoms when the protein to which the body is sensitised enters the blood stream. Some writers do not draw a distinction between allergy and anaphylaxis, and the whole problem is difficult and confusing; but while sensitisation is generally believed to be a stage in the development of immunity, Rich has shown that it is possible to separate the two processes. Acquired immunity is an ability to inhibit the growth and invasion of bacteria whose toxins have been the sensitising protein, and to neutralise these toxins. There may be such a degree of immunity as can cope with a small invasion, but an extensive extraction of teeth or a tonsillectomy may release more of the specific toxin or organism than can be dealt with, or sensitiveness may be heightened by injudicious vaccine therapy or otherwise, and fresh invasion takes place from the original focus or from secondary foci.

Hypersusceptibility may of course result from other causes—climatic conditions to which the individual is ill-adapted, by no means the same for everyone; malnutrition from lack of suitable food, under which heading may be included vitamin deficiencies; overwork or severe nervous or emotional strain, such, for example, as often results from long nursing of a sick relative; shock; endocrine deficiency; bad hygienic conditions at home or in the workshop; and many others. All these conditions may be regarded as sensitising factors in the widest sense.

USE OF VACCINES

The specific treatment of the bacterial factor has been the object of much research both at the bedside and in the laboratory. Treatment by vaccines has had a great vogue, and is based on the assumption that by the administration of a suspension of a microbe believed to cause the disease we might raise the resistance of the body and thus enable it to overcome the infection. While overwhelming clinical evidence of the value of this procedure in securing prophylaxis is forthcoming no such claim can be advanced for it as a method of treatment, and as Topley[6] says, "the practice of vaccine therapy rests on a very inadequate basis of experimental evidence." As a method of treatment it has been more extensively used in chronic rheumatic disease than in any others, with the exception perhaps of local staphylococcal lesions where the conditions are different. To the ordinary observer it seems illogical, when the system is already invaded by some microbe, and has presumably mustered all its defensive forces to combat the invasion of the bacteria and to neutralise their toxins, to inject further doses of the same toxins. And yet good results have undoubtedly followed such treatment in some cases, though I fear more cripples than cures have resulted from indiscriminate and injudicious vaccine therapy. To what, then, are the successes to be attributed? It may be that the amount of toxin or bacteria absorbed from the septic focus is insufficient to rouse the whole of the defensive forces of the body, and the vaccine produces a further or more powerful stimulation; but, on the other hand, the risk of sensitising the tissues further is a very grave one, and in consequence dosage must be extremely small to begin with if it is thought desirable to use such treatment. A vaccine administered in very small doses at suitable intervals, or in such a way as to secure very slow absorption as by the intradermal method, appears to act not by stimulating antibody formation but by inducing desensitisation.

An example of this method of desensitisation is found in the prophylaxis and treatment of hay-fever and asthma—typical allergic states—by the injection of minute doses of the protein or other substance to which the victim is susceptible. It does not appear essential for desensitisation that the vaccine should be autogenous, and as proof is yet lacking as to the exact nature of the infecting organism it seems hardly justifiable to speak of an autogenous vaccine if by that it is claimed to be a vaccine of the infecting microbe. All that can be said is that it contains some of the microbes from the patient's own focus, and may therefore be more effective in desensitisation in the particular case.

The intradermal use of vaccines for desensitisation has been tried, particularly in France, with some promising results. The method has three features—slow absorption of minute doses of a mixed antigen; the stimulation of the deeper layers of the dermis to produce antibodies, which some regard as a point of importance; and polyvalency with the inclusion of tuberculin which is regarded as a universal non-specific antigen—and this may be the most important feature. The possibility of a tuberculous basis in some forms of arthritis to which reference has already been made receives support from the good effects which I have known to follow treatment by this method. It is necessary to study the effects carefully, increasing the intervals gradually, especially if there is reason to suspect the existence of tuberculous foci, active or latent, in the system. If there

is no sign of benefit after three or four inoculations it is better to try some other method, but I have noted in several cases marked improvement manifested by a rise in the sedimentation-rate as well as in the general symptoms. A course of ten or fifteen inoculations seems to be the best, followed, if necessary, by chrysotherapy.

This method of using vaccines as desensitising agents has the advantage of being reasonably free from risk, but none the less requires care, and it is desirable that a chart of the temperature should be kept and the character of any reaction noted carefully upon it; with such precautions the dose may steadily be increased, but any sign of increasing reaction without a proportionately increased dose calls for a temporary cessation of the treatment or the trial of some other method. In my opinion, the success which is claimed for a vaccine which is supplied commercially, and has attained considerable popularity for the undoubtedly good effects which have resulted in many cases, is due to its action as a desensitising agent.

In regard to the intradermal use of a vaccine, the observation of Auer [7] is of interest; he found that injury to the skin of a sensitised animal when antigen was in the circulation might produce a local reaction due to the actual excretion of sensitinogen into the injured area. Jenkins [8] has suggested that from this observation it may be inferred that once a joint is damaged a more or less continuous irritation is set up by the antigen in the blood, and a vicious circle is started which can only be broken by the removal or neutralisation of the circulating antigen.

The use of vaccines in the ordinary way is believed by some to be simply a form of protein shock therapy. However produced, so-called protein or peptone shock sets up an anaphylactoid reaction differing in some details from true anaphylactic shock; but the resemblance to the shock effect produced by antigen-antibody reaction is striking. This is due to the liberation of a histamine-like substance, and the influence of histamine in the treatment of arthritis is receiving considerable attention. As a local method it has proved of definite value.

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BACILLARY DYSENTERY OF THE NEWCASTLE TYPE

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With a Note on the Bacteriology

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ON Jan. 15th, 1934, Dr. R. J. Ormsby, medical officer of health for Standish, called at my office and asked me if I would admit to the Wigan Infectious Diseases Hospital two cases of probable food-poisoning. He informed me that four people had been affected in one house in his district, a mother and her three children. The two children referred by Dr. Ormsby for admission had partaken of corned beef none of which was left for examination. The mother and the other child had not partaken of it. This third child, a boy, J. S., aged 12, had been sent to the Wigan Infirmary with marked cerebral symptoms in addition to frequent vomiting, abdominal pain and diarrhœa. He had a history of having fallen on his head a week before and, as the cerebral symptoms pointed to possible compression, he was trephined. He died on Jan. 15th, and post mortem marked inflammation of the intestinal tract was found. I advised Dr. Ormsby to call at the local infirmary and ask Dr. W. E. Cooke, the pathologist to this institution, if he would kindly forward to Dr. W. M. Scott, of the Ministry of Health, specimens of liver, kidney, spleen, stomach and intestines from the case according to the recommendation of the Ministry of Health in cases of possible food-poisoning. This material was sent as requested.

The other two children were admitted to the Wigan Infectious Diseases Hospital on Jan. 15th, 1934. The boy, F. S., aged 8, was extremely ill on admission with very frequent vomiting, abdominal pain, diarrhœa and symptons of cerebral irritation. His temperature rose to 103° F. on the second day and there was some delirium and violent headache. His colour was poor and his pulse very weak, with sighing respiration. He still complained of severe abdominal pain and there was much abdominal tenderness and rigidity. The vomit was very offensive and the stools, green and very foul smelling, showed occasionally mucus with traces of blood.

The other child, a sister, E. S., aged 11, was not so acutely ill on admission but had had very similar symptoms before that. She complained of severe headache but the vomiting and diarrhœa had subsided; there was some mucus in her stools. She made a rapid recovery.

The treatment was symptomatic together with rectal salines and glucose. Six days after admission the boy, F. S., had completely recovered. Specimens of his vomit and fæces were sent to Dr. Scott and specimens of his blood and that of his sister a fortnight later for agglutinin tests.

There is no evidence that any particular article of food conveyed the disease; no other similar cases are known to have occurred in the neighbourhood One may hazard the guess that the source of infection of this family may have been an undiscovered carrier.

Note on the Bacteriology. (*By* Dr. SCOTT.)

The colon of J. S. received on Jan. 18th showed definite congestion with minute hæmorrhages in the mucosa.

MacConkey plates inoculated with scrapings from the mucous surface yielded only one non-lactose-fermenting colony (among many typical *coli* colonies). With the fæces from F. S., however, MacConkey plates were obtained showing numerous non-lactose-fermenting colonies. The two strains thus isolated, J. S. and F. S., behaved exactly alike in culture; they were non-motile, produced no indole and fermented dextrose and dulcitol but not lactose, sucrose or mannitol. The dextrose fermentation was evident after 24 hours but the dulcitol not till after five days at 37° C. With both "sugars" a small bubble of gas was produced as well as acid. Agglutination tests were negative with sera of the salmonella group and of the Flexner and Sonne dysentery types, but were positive to full titre (1600) with serum prepared with a strain of the Newcastle bacillus described by Clayton and Warren,[1] as well as with sera prepared with strains, regarded as serologically identical, isolated (1) by Downie and Wade [2] near Manchester,

(2) by Young [2] in Nigeria, and (3) by Boyd [3] as type 88, in India. The last-mentioned serum (Boyd 88) (titre 3000) was completely robbed of agglutinin for its homologue, as well as for Newcastle, Manchester and Nigeria strains, by absorption with cultures J. S. and F. S. Cross-absorption was not done, but there seems no reason to doubt that these two strains from Wigan belong to the species *Bact. dysenteriæ* (Newcastle). It is of interest that the Wigan strains are the first, so far as published records go, to be found in cultural agreement with the original strains of Clayton and Warren. The strains described by Downie and Wade were mannitol-fermenters, that by Young was originally motile, though it lost this character in subculture, while none of the strains of Boyd's type 88 (all mannitol-fermenters) produced gas with any "sugar."

Major Boyd, R.A.M.C., reports (personal communication) that his type 88 is responsible for quite a large proportion of cases of bacillary dysentery in India, and I have myself found to be serologically identical with it, and with the Newcastle strain, some 12 strains isolated in Waziristan by Capt. G. T. L. Archer, R.A.M.C., and brought to me by him last February. It is evident that the Newcastle bacillus is widespread in distribution and the cause of typical and not seldom fatal dysentery. Its identification in practice is most easily and rapidly achieved by direct macroscopic agglutination of a portion of a colony from the primary plate, inoculated with dysenteric mucus, in a drop of the specific serum, diluted, say, 1 in 50 with saline. The other dysentery bacilli, Shiga, Flexner and Sonne, will emulsify in such a drop without clumping, while bacilli from a colony of the Newcastle species will immediately run into dense clumps visible to the naked eye (but preferably inspected with a hand lens). In other specific agglutinating sera (Shiga, Flexner, Sonne) similarly diluted, the Newcastle colony will give perfect emulsions. Culturally the species is variable, as stated above, but the absence of indole-formation and the (slow) fermentation of dulcitol appear to be constant characters of differential value. Retrospectively, the diagnosis may be made by Widal tests of the convalescent serum with suitable suspensions of the Newcastle bacillus (preferably 24-hour broth cultures killed and preserved for storage by chloroform). The tests should be made in the usual way with serial dilutions of the serum in the water-bath at 50° C. for four hours and titres as high as 640 have been recorded (Downie and Wade [2]). In the case of the patients J. S. and E. S. of the Wigan outbreak above described, the titre for an emulsion of the Wigan strain reached 320 and 160 respectively, the blood having been obtained 14 days after onset of the disease. With the various Flexner types and with the Sonne bacillus, J. S. and E. S. convalescent sera gave practically no agglutination (negative at 1 in 20). The Wigan emulsion tested with "normal" human sera (Wassermann specimens), as controls, gave completely negative results with five out of six specimens: the sixth gave fine clumps up to 1 in 40 dilution, but not higher. Widal tests in Newcastle infections are, therefore, closely comparable in titre level to those in Sonne infections and are equally useful in epidemiological investigations.

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TREATMENT OF BRONCHIAL ASTHMA
BY DORSAL PERI-SYMPATHETIC INJECTION OF ABSOLUTE ALCOHOL

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Technique.—The patient is seated leaning forwards, the hands resting on the knees; the spine is arched backwards, and the tips of the shoulders are drawn in so as to allow the maximum retraction of the scapulæ. A point is selected 4 cm. away fom the spine, preferably in the third, fourth, fifth, or sixth intercostal spaces. A few drops of novocaine are injected intradermally so as to raise a weal; the needle carrying the absolute alcohol is introduced perpendicularly just above the space to be injected down to the inferior margin of the rib; as soon as the rib is felt the needle is directed slightly downwards and 45° forwards and inwards to the depth of about 2 cm. away from the lower margin of the rib. The point of the needle is now between the external and internal intercostal muscles. The needle is pushed slightly further inwards towards the spine and about 2·5 c.cm. of absolute alcohol are slowly injected, slightly altering the position of the needle for each spurt. Usually a sharp pain is felt in two or three interspaces immediately below the site of injection. Two or three intercostal nerves can be dealt with at the same sitting.

The only possible complication is injury to the pleura; the entry of the needle into the pleural cavity can be, however, easily observed by the thick velvety feel of the pleura and by a hissing noise due to entry of air (it is preferable therefore to introduce the needle alone without the syringe). In doubtful cases the needle should be connected with a manometer, and the presence or absence of respiratory excursions of Hg will show whether the needle is, or is not, in the pleural cavity.

Similar results may be directly obtained by dorsal sympathectomy. Leriche in Nelson's "Loose Leaf Living Surgery" (Vol. IV.) describes the following method of the latter:—

> A vertical incision is made one inch lateral to the spine and two inches above and below the selected intercostal space; the muscles are split and retracted as far as the articular processes inwardly and the costal tubercles outwardly. The transverse process is divided close to its base, and the intercostal nerve is exposed lying on the endothoracic fascia covering the pleura—below the corresponding vein and artery. The nerve is hooked forwards, and the rami are recognised as tense threads on the inferior aspect of the nerve; they are sectioned, and the wound closed.

Leriche reports a number of successes by this method.

Adson advocates very much the same line of approach to the second intercostal space. His further steps comprise resection of the second rib, division of the sympathetc trunk below the second thoracic ganglion, followed by total extirpation of the lowest cervical and the first and second thoracic ganglia. In this way all the fibres travelling to the pulmonary plexus via the cervical sympathetic are completely divided. The operation appears rather severe, and too widespread in its effects; all the other thoracic organs—the heart and the œsophagus—are largely deprived of their sympathetic supply; branches to the brachial plexus are also completely interrupted.

It is obvious, however, that injection of absolute alcohol into the bronchial sympathetic nerves is in many respects more advantageous than an operation. Injection can be repeated many times without undue disturbance to the patient; total destruction of sympathetic rami is unnecessary, partial destruction being sufficient to alter the nerve balance in favour of relaxation; and, finally, advanced asthmatics are hardly fit subjects for operative interference.

Clinical Observations.—So far, 16 patients have been treated by the absolute alcohol method, the majority of them being so-called incurables. In 10 cases there was complete relief after four to eight injections; in one case there was sufficient improvement after two injections for the patient to discontinue treatment; in 3 cases there was a very considerable improvement after two or three injections; in 2 cases the improvement was only slight. The following are brief case-histories:—

CASE 1.—Mr. A., aged 30. Severe asthma of four years' standing. No relief from adrenaline. No improvement after a course of autogenous vaccine prepared from sputum. Signs of heart failure. Life unbearable. Injection of absolute alcohol in the third and fourth rami on each side. Great improvement after the second injection. Complete disappearance of asthma after the fourth injection. No return of asthma for the last three years.

CASE 2.—Miss B., aged 22. Bronchial asthma since age of 6; totally incapacitated for pleasure or study. Only temporary relief after injection of morphia gr. ¼. Heavy nasal catarrh. Improvement after autogenous vaccine and peptone—return of asthmatic attacks with vengeance. Four absolute alcohol injections into the fourth and sixth left interspaces and the fifth and sixth right interspaces. Pleuritic pain after the first two injections necessitating rest in bed. Complete cure; no recurrence for the last two years.

CASE 3.—Mr. C., manual worker, aged 48. Since age of 12 subject to bronchial asthma; never entirely free; incapacitated for work four months in the year. Treated by alcohol injections, five in all. Breathing has been perfectly free for the last 20 months.

CASE 4.—Mr. D., aged 31. Severe daily attacks of bronchial asthma for the last six years; unable to sleep for a period longer than two hours at most. Four absolute alcohol injections into the third and eighth left interspaces, and the fifth and sixth right interspaces. Considerable improvement; the attacks now occur only in a mild form and, on the average, once in ten days.

Summary.—(1) The bronchial rami contained in the sympathetic dorsal fibres are comparatively superficial at one part of their long course—namely, at the point where they join the corresponding intercostal nerves. At this point they are open to attack either by knife or by absolute alcohol injection. (2) Clinical results of alcohol treatment are so far very encouraging, cure resulting in three-quarters of the cases. (3) The cases most suitable are those of long-standing inveterate asthma.

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SECONDARY CARCINOMA OF THE MYOCARDIUM

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CARCINOMA with secondary involvement of the myocardium is occasionally found post mortem, but is rarely recognised during life; indeed Goldstein,[1] who reviews 100 cases of primary tumour of the heart and reports nine cases of secondary growth, says that the diagnosis is never made until autopsy. Hamilton,[2] who found secondary involvement of the heart in 0·28 per cent. of cases of carcinoma, states that the primary lesion is most often in the thorax. Welch[3] reports a case in which it was in the prostate. He gives figures from the pathological institute of the University of Berlin showing that in 6655 autopsies there were 15 cases of carcinoma of the heart (0·22 per cent.). The lesion was always secondary, and the primary was in various organs. Boyd,[4] who also mentions the extreme rarity of myocardial secondaries, says that malignant melanomata are the most common growths to give rise to deposits of this kind.

In 1281 autopsies at the Leicester Royal Infirmary there were 103 cases of carcinoma, 32 of sarcoma, and 9 other malignant growths. Among these there were four cases in which there was growth in the myocardium, two of carcinoma (1·9 per cent.), and two of sarcoma (6·2 per cent.). Including all autopsies, carcinoma of the myocardium was found in 0·3 per cent. A primary sarcoma of the mediastinum gave rise to a mass in the pericardium which ulcerated into the left ventricle; a small round-cell sarcoma of the retroperitoneal tissues was associated with nodules in the heart muscle; a primary carcinoma of the left suprarenal was followed by pericarditis due to deposits in the pericardium. The fourth case is now reported.

Specimen showing secondary deposits of carcinoma in the myocardium, the primary growth being at the pylorus.

History—A. B., aged 42, a grocer's assistant, was admitted to hospital on Oct. 12th, 1931, complaining of a pain in the back. He had first complained six months before, but no abnormal physical signs were elicited and a provisional diagnosis of sciatica was made. A course of radiant heat baths was advised and the patient experienced relief for a short time. When the pain recurred it was referred to the middle of the back. It was gnawing in character, present all the time, but worse at night so that sleep was disturbed. Although the pain was not related to food, the appetite was poor. There was neither nausea nor vomiting. The bowels had been loose but on admission to hospital were normal. There had been no melæna;

much weight had been lost. Two months before admission to hospital numerous small tumours had appeared in the skin of the abdomen and thorax.

Examination.—The patient looked much older than his years, and was very emaciated. The tongue was dry and swollen, the gums edentulous. No abnormal physical signs were found in the lungs. The apex-beat was not displaced, the heart sounds were regular and of good quality, and there were no cardiac murmurs. The skin of the abdomen was studded with small tumours each of approximately half an inch diameter. These were freely movable in the skin and were hard. A tumour was visible in the left hypochondrium, appearing from beneath the costal margin, and passing towards and beyond the umbilicus. It moved on respiration. It was hard and tender, the edges were ill-defined, and no notch could be felt in the anterior border. The tumour could not be palpated in the loin and the percussion note over it was resonant. The liver was enlarged two fingers-breadth below the costal margin and its surface was roughened.

Pathological investigations.—The blood count on admission was: red blood-cells, 3,668,000 per c.mm.; hæmoglobin, 50 per cent.; colour-index, 0·68. The red cells showed anisocytosis, poikilocytosis, and polychromasia. No normoblasts were seen. White cells numbered 22,812 per c.mm. (polymorphonuclears, 94 per cent.). A fractional test-meal showed no free HCl throughout; a trace of lactic acid was present. Radiography of the alimentary tract after an opaque meal revealed considerable deformity of the pyloric end of the stomach, suggesting pressure from without the stomach rather than intrinsic disease of its wall, secondary involvement of the latter not being excluded. The gastric emptying time was not impaired, and there was no obstruction in the duodenum. A lesion of the pancreas was suggested. A tumour was excised from the abdominal wall and sectioned; it showed a typical spheroidal-cell carcinoma.

Subsequent progress.—Five days after admission the patient vomited large quantities of dark fluid resembling changed blood. The pulse-rate rose from 100 to 120, the cardiac rhythm remained regular. Death took place on Oct. 25th. Permission to examine the abdomen only was obtained.

Post-mortem report.—The peritoneum was studded with small nodules similar to those in the skin. A small amount of free pus was found round the pylorus. The liver weighed 74 oz., there was extensive perihepatitis, and secondary nodules were present throughout. A large ulcer was found at the entrance of the pylorus with hard, raised edges. This ulcer was adherent to the pancreas which was infiltrated with growth. The mass made by the pancreas and the enlarged posterior abdominal glands comprised the tumour which could be palpated per abdomen. Nodules of growth were found in both kidneys and suprarenal glands. The heart was removed through the diaphragm. The myocardium was studded with small nodules of growth, nodules projected into both auricles (see Figure). Sections of all secondary deposits and the pyloric ulcer were examined, and all showed a similar type of growth. It was a spheroidal-cell carcinoma.

Post-mortem diagnosis: General carcinomatosis secondary to carcinoma of the pylorus.

It will be noticed that there were no symptoms of cardiac damage (save a moderate degree of tachycardia after hæmatemesis) noticed during life. This appears to be usual. The case presented some difficulty in diagnosis, especially as the tumour palpable in the left hypochondrium somewhat resembled an enlarged spleen.

My thanks are due to Dr. J. V. C. Braithwaite for permission to publish this case, and to Dr. W. W. Mackarell for allowing me access to the post-mortem register at the infirmary.

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ANTIHÆMOLYSIN TITRES IN CHRONIC RHEUMATIC AND ALLIED DISEASES

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In 1932 Todd [1] showed that after infection with hæmolytic streptococci the antihæmolysin titre of the serum materially increases and that this increment is found, almost without exception, after an attack of acute rheumatism.

In 1932, following the examination by Dr. Todd of ten samples of serum obtained in this hospital from cases of subacute rheumatism, which gave a high proportion of high antihæmolysin titres, it was decided to investigate a larger series of cases of the various forms of rheumatic diseases admitted to the Devonshire Royal Hospital.

The *methods* used were essentially those given by Todd [2] and Todd and Hewitt,[3] except that the medium used for the preparation of the streptococcal hæmolysin was prepared with bullock flesh instead of horse flesh and the organisms were grown at a very reduced pressure, usually about 30 mm. Hg.

When the cultures were grown at atmospheric pressure it was found that the hæmolytic activity of the filtrate varied considerably. After cultivation at reduced pressure and allowing a longer period of contact during the reduction by the hydrosulphite, a hæmolysin of fairly constant strength was obtained. Half a cubic centimetre of a 5 per cent. suspension of human red blood-cells was completely hæmolysed by 0·05–0·1 c.cm. of the hæmolysin preparation. The hæmolytic broth was stored in vacuo in an ice box.

In the final determination of the antihæmolysin titre of the serum, the minimum hæmolytic dose (M.H.D.) of the hæmolysin was checked against a standard antihæmolysin kindly supplied by Dr. Todd and the results were expressed as antihæmolytic units, one unit being capable of completely neutralising 2½ M.H.D. of hæmolysin.

The results of the examination of 224 cases of rheumatic and allied diseases are shown in the accompanying Table, in which the results are expressed as percentages showing antihæmolytic titres above the normal, the maximum for which is taken as 50 units. This is the highest value obtained in a series of apparently healthy persons giving no history of recent streptococcal infection or sore-throat and agrees with one exception, with the normal values obtained by Todd.[1 4]

Antihæmolysin Titres

Disease.	Cases.	Percentage. Abnormal (i.e., titre > 50 units).
A. Subacute rheumatism ..	64	83
B. Infective arthritis ..	95	59
C. Spondylitis ankylopoietica	11	64
D Spondylitis osteo-arthritica	6	27
E. Osteo-arthritis	6	Nil.
F. Fibrositis	27	52
G. Sciatica	12	(1) 42 (2) 22
H. Paget's disease	3	Nil.
I. Rheumatic fever (after Todd): quiescent	25	24
I. Rheumatic fever (after Todd): active	23	100

The values for sciatica are placed under two separate headings: the first, 42 per cent., includes three patients who were subject to frequent sore-throats; the second, 22 per cent., excludes these three patients.

The percentage of cases of subacute rheumatism giving a high titre approximates to that found by Todd in the active acute type and tends to confirm the close relationship that has been assumed to exist between these two types of rheumatic diseases. It will also be seen that the other forms of rheumatic and allied diseases can be divided into two groups.

(1) Rheumatoid arthritis and spondylitis ankylopoietica, having a definitely high percentage of abnormally high values, and which are regarded by many authorities as infective in origin.

(2) Osteo-arthritis and spondylitis osteo-arthritica, non-infective in origin, and giving but few high antihæmolysin titres.

The relatively high proportion of abnormal values in the fibrositis group is very suggestive of an infective factor in some cases, a conclusion also reached by Race [4] from a consideration of the suspension stability results. In the sciatica group, after the exclusion of cases with a history of recurrent sore-throat, the abnormal titres are few, and it is possible that some of these may be due to the presence of an infective fibrositis producing trunk sciatic symptoms. In the three cases of osteitis deformans (Paget's disease) all the results were normal.

Whilst the results given above cannot be regarded as proof of a cause-and-effect relationship between hæmolytic streptococci and rheumatic disease they do suggest that a hæmolytic streptococcal infection cannot be ignored. Other methods of investigation, such as skin reactions and agglutination tests, have also yielded results suggestive of an association of hæmolytic streptococci and rheumatic disease, but their significance when analysed by statistical methods is comparatively low compared with the antihæmolysin titres.

It might be objected that the antihæmolysin titres as determined by the process employed may be vitiated to some extent by the presence of a hæmolytic infection of non-streptococcal origin. Todd [1] examined numerous antitoxic and antibacterial sera, one of which was prepared from *Bacillus welchii*, an organism producing a strong exohæmolysin, and found all to have antihæmolysin titres not exceeding 50 units. Several hæmolytic strains of organisms have been examined in the Devonshire Hospital, and it was found that although streptococcal antihæmolysin serum could neutralise the hæmolysin produced by certain strains of staphylococci, *Streptococcus viridans*, or pneumococci, the hæmolytic property of such organisms is neutralised by such a small amount of streptococcal antihæmolysin as to suggest that any errors that may be produced by such infections are negligible in extent. Cowan [5] was able to produce pneumococcal antihæmolysin in rabbits, but the titre of the serum at its maximum was only approximately 800 M.H.D. as compared with 50,000 M.H.D. in Todd's streptococcal antihæmolytic serum, a ratio of only 1·6 : 100. *B. welchii* and certain strains of *B. coli* produce a potent exohæmolysin, but this is not neutralised by the streptococcal antihæmolytic serum and consequently does not affect the results.

Streptococcal antihæmolysin is not specific in its action, but the other hæmolytic organisms that might affect its determination are so weak in their hæmolysin production that in practice they can safely be ignored.

I wish to express my indebtedness to Mr. J. Race, F.I.C., biochemist to the Devonshire Royal Hospital, for his valuable help, criticism, and useful suggestions, which has made possible the surmounting of many difficulties in the investigations; also I thank Dr. C. W. Buckley, chairman of the research committee, for his interest and encouragement, and Miss M. Harrison, my assistant, for her technical help.

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AN EXPLOSIVE ERUCTATION

By Terence East, D.M. Oxon., F.R.C.P. Lond.,

PHYSICIAN TO KING'S COLLEGE HOSPITAL AND TO THE WOOLWICH MEMORIAL HOSPITAL

> "Behold the stomach: crammed from every dish,
> The tomb of boiled and roast and flesh and fish.
> Where bile and wind, and phlegm and acid jar,
> And all the man is one intestine War!"

No doubt Pope meant these lines to refer to the effects of gluttony. But quite apart from this, organic disease of the pylorus may bring about a similar state of affairs and occasion the following remarkable and unusual mishap.

The patient was a middle-aged man, rather thin and pale. He said that for a number of years he had suffered at times from pain in the region of the stomach after food. Recently vomiting had troubled him. This took place at irregular intervals, the amount being copious. On going into details he remembered bringing up material that he had eaten many hours before. The vomit was offensive as a rule. He also was prone to violent and foul-smelling eructations. But what really distressed him more than anything else was the following startling occurrence.

One evening he had taken his wife to the cinema. There, in the darkness, feeling inclined to smoke, he had taken out a cigarette, and put it between his lips; he struck a match, bringing it up in his cupped fingers. Just at that moment a violent eructation occurred. To his alarm and astonishment, and of those seated near him, there was a flash and a sharp explosion; the cigarette was blown from his lips away across several rows of seats; his moustache was singed, and his lips and fingers burnt. In pain and confusion he had hurriedly to leave the cinema. The astonishment of the neighbours at this "fiery exhalation" can well be imagined.

The diagnosis of pyloric obstruction was fairly clear. Gastric peristalsis was easily seen. The barium meal showed the usual prolonged delay in the stomach. The gastric contents were copious, with yeast cells, sarcinæ, and lactic acid. No doubt the gas from the stomach mingled with the air in the mouth and cupped hands in just the right proportions, the cavities forming an explosion chamber, which required only a naked flame to produce this unpleasant occurrence. At laparotomy a cicatrised ulcer was found at the pylorus.

A few cases similar to this are on record. Beatson [1] mentioned a man whose breath caught fire one night when he was blowing out a match which he had struck to see the time. For some time past the foul odour of his breath had been noted. McNaught [2] described how a man eructated when blowing out a match, which he had struck in the night in order to look at his watch. His breath caught fire and his moustache was burned. In this case the gas from the stomach was analysed, and found to contain CO_2, 56 per cent.; H, 28 per cent.; CH_4, 6·8 per cent.; air, 9·2 per cent. He quoted several cases in the German literature where analysis of the stomach gases showed much the same composition. Another case recorded by Martin [3] suffered from foul eructations, smelling like rotten eggs. When lighting his pipe two hours after breakfast he belched, and there was a sharp explosion, which singed his beard and eyebrows.

No doubt these were all cases of pyloric stenosis. McNaught's patient improved with gastric lavage. The inflammable gases appear to be CH_4, hydrogen, and H_2S.

A gastroenterostomy was done successfully on the patient here described. There was the usual rapid increase in weight and return of well-being, now that his stomach, where, to quote the words of Jenner, "Sits enthroned the grand monarch of the constitution," was once more at peace.

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REVIEWS AND NOTICES OF BOOKS

The Social Survey of Merseyside

Edited by D. CARADOG JONES, M.A. (University Press of Liverpool). London: Hodder and Stoughton, Ltd. 1934. Vol. I., pp. 328, 15*s*.; Vol. II., pp. 413, 21*s*.; Vol. III., pp. 560, 25*s*. Set of three volumes, 45*s*.

THIS survey, made mainly between the summers of 1929 and 1932 by the school of social sciences and administration of the University of Liverpool, under the direction of Mr. Caradog Jones, contains a mass of varied information on the social and industrial life of the Merseyside industrial area, based on official figures, the knowledge of experts, and a very extensive use of sample investigations and questionnaires.

Vol. I., after giving a history and general description of the area, deals with the income and expenditure of the working classes, the influence of poverty, and housing conditions. Extensive use is made of a household sample of 6906 families containing 28,845 persons; made by visiting 1 in every 30 of the working-class houses throughout the area. The sample showed 26 per cent. of families living more than one family per house, and 17 per cent. of all persons and 24 per cent. of children living under overcrowded conditions. Among the families investigated 16 per cent. of all persons and 23 per cent. of children were found to be living in poverty. (Both overcrowding and poverty were assessed according to definite standards.) A comparison with the results of a sample given in the "New Survey of London and Labour" shows that in London in 1929–30 the percentage of overcrowding was higher but the percentage of poverty lower—owing to the much lower unemployment percentage in London.

Vol. II. deals with the industries and occupations of Merseyside and the trend of employment and unemployment. It incorporates the material provided in 1932 by the University of Liverpool for the Board of Trade. Merseyside is at present a "depressed area" and the major part of its economic activity, that concerned with shipping and distribution, "is chiefly governed by conditions so far reaching in character that only forces set in motion on an international scale can radically improve them." There is a very interesting discussion of the probable effects of tariffs on the different industries, with a plea that similar information should be collected for other areas.

Vol. III. deals in part with local government in general and the functions of public health, public assistance, elementary and secondary education. The Merseyside industrial area is a striking example of the lack of correspondence between boundaries and the social and economic units of population. Its 1,300,000 of population, closely united socially and industrially, is divided between the four county boroughs of Liverpool, Bootle, Birkenhead, and Wallasey, six urban and two rural districts, and the administrative counties of Lancaster and Cheshire. A similar position was revealed in the survey of Tyneside made a few years ago, where the population of the area surveyed came under the control of 15 local authorities. The remainder of this volume is mainly taken up with an investigation into various subnormal types of population, a consideration of the social services and differential fertility, and a record of sample inquiries about the occupations and interests of adolescents, the uses of leisure, infant welfare, and church attendance.

The use of the method of sampling in unusual types of inquiries makes this volume of particular interest. In an inquiry on infant welfare two samples were taken: one consisted of all the births notified in Liverpool during a fortnight in February, 1930—717 in all; the other of 200 births in families too well-to-do to be supervised by the health visitors. As far as possible a record was kept of every baby over a period of two years. In Liverpool, as a whole, more females than males survived and made good progress, but this was true only of the inner districts, containing most of the poor parts of the city. Of the babies in the good types of artisan families 80 per cent. made good progress and only 5 per cent. died, as compared with 45 per cent. and 19 per cent. respectively in the poorest types of families. The child without brothers or sisters had the best record. Premature babies showed a large proportion of deaths (about 40 per cent.) and the survivors made less satisfactory progress than the average. The proportion of breast feeding was higher in the poorer families than in those better off, and in both cases the best results were with the breast-fed babies. In the small number of cases where the mother went out to work the child's progress did not seem to be seriously affected. On the other hand, of the babies in families living in overcrowded conditions, 20 per cent. died and only 38 per cent. made good progress.

The inquiry on church attendance deals mainly with the types of attenders at places of worship. Liverpool is not typical of the whole country in that about 30 per cent. of the population are Roman Catholics. On the basis of censuses made in the past by the *Liverpool Post*, the survey estimates 15–20 per cent. of the population as church attenders. A census of attendance of those aged over 14 taken in two Tyneside towns in 1928 gave a rather similar figure of about 20 per cent. in Wallsend and about 12 per cent. in South Shields. In Liverpool samples were taken of congregations in May, 1930, and 1931, questionnaires being distributed to those attending. The 9087 replies from persons over 14 showed a considerable predominance of women and girls over men and boys in all the three groups considered—Church of England, Roman Catholic, and Free Churches—the predominance being greatest in the Church of England. (The figures for the two Tyneside towns gave similar results for sex distribution.) In respect of sex, age, marital state, and occupation the Roman Catholic congregations resembled the general population more than did the congregations of the other two groups. In these latter there was a larger proportion of the young (aged 14–29) and the old as compared with the middle aged, of single as compared

with married women, and of non-manual as compared with manual workers.

Anyone who even dips into this survey must be impressed with the enormous amount of work which has been devoted to its making by many individuals. The results will no doubt be of most interest to those who know the area surveyed, but the authors have been remarkably successful in their appeal to a far wider circle. In many directions the survey adds to our knowledge of the subjects covered.

Japanese Medicine

By Y. FUJIKAWA, M.D. Translated from the German by JOHN RUHRAH, M.D. New York: Paul Hoeber. London: H. K. Lewis and Co., Ltd. 1934. Pp. 114. 7s. 6d.

WE recently reviewed a pendant to this little book dealing with Chinese medicine, but the similarity between the two is only on the surface. The literary history of medicine in China begins 3000 years earlier than the mythical period in the case of Japan, which barely predates Christian era. As, however, there is evidence of intercourse between the Chinese and Japanese more than 1000 years before that era, it is probable that some sort of medical interrelations had been established before Japan can be said to have had a medical science of her own. Certainly when Buddhism arrived by way of Korea the writings brought by the Buddhist priests were written in Chinese, and everyone who desired to study the new teachings had to learn Chinese. Dr. Fujikawa enumerates eight Chinese medical textbooks which were necessary from the beginning to the Japanese medical student.

As we approach the definite historic era of A.D. 1100 we find that the Japanese had themselves produced a considerable number of medical works, though here again the oldest existing medical book of Japan is stated to be partly based on medical treatises introduced from China, abstracts from the Chinese classics forming the text for Japanese editorial observation. The anatomy and physiology of this period, termed by the author the Heian period, and including the 400 years between 784 B.C. and A.D. 1186, are purely fantastic, and their Chinese origin can be readily detected. The basic assumption of the physiological teaching was the existence of the double principle, positive or masculine and negative or feminine; these are the creators of the living body and circulate with the blood and pneuma or air, but no explanation as to how that circulation was maintained was attempted. In general pathology the principal cause of disease was the behaviour of the pneuma, or "live air," drawn through the skin into the body, and according as it proved too hot or too cold for inhalation it worked as an activating power. The influence of the pneuma could cause any single kind of disease to be indefinitely subdivided, a fact which accounts for detailed attention to pharmacy. Medicines were prepared as pills, powders, extracts, tinctures, decoctions, vapours and suppositories, and one pharmacopœia included 81 drugs derived from minerals, 509 from plants, and 182 from animals. In surgery, the Japanese during the earlier periods were more advanced than in medicine; the treatment of wounds, ulcers, and abscesses was often logical, and there was considerable knowledge of ophthalmology. And at the same time sensible attention was paid to hygiene, clothing, housing, ventilation, and foodstuffs.

The development of medical science in the country throughout dates corresponding to the early middle ages in Europe is set out briefly, and the references to literature show that more sources of information exist than might have been suspected. The political conditions of Japan were often stormy when the influence of China would again become paramount, for Japanese savants repaired to the more peaceful neighbouring country to study their science. But real advances came slowly, for during the long Yedo period (A.D. 1616–1876) the pathology of Japanese doctors remained wholly fanciful, resting on theories which are impossible to follow in spite of Dr. Fujikawa's careful analysis of them. The Japanese, however, had detected the romantic nature of much of their anatomy and physiology, and when increasing communications with Europe placed at the disposal of students at the end of the eighteenth century accurate descriptions of the internal organs there were many observers able to take advantage of Western learning.

The recent history of medicine in Japan is supplied by Dr. Kageyas Amano, who enumerates briefly the fine contributions to modern science which followed in the nineteenth century upon the introduction of Western learning. Takamine, Kitasato, Shiga, Noguchi, and Yamagiwa furnished in remarkable succession their additions to the world's wisdom, and the contrast of the last quarter of this little volume with the preceding three-quarters is sheerly dramatic. We have here an almost incredible picture of development.

The 1933 Year Book of Pediatrics

Edited by ISAAC A. ABT, D.Sc., M.D., Professor of Pediatrics, Northwestern University Medical School. With the collaboration of ARTHUR F. ABT, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. Chicago: Year Book Publishers Inc.; London: H. K. Lewis and Co., Ltd. 1934. Pp. 548. 10s. 6d.

THE editors of this volume in what is now a well-known series have again carried out the laborious and extremely useful task of abstracting the year's pædiatric literature. If the attention given to the publications that have appeared in American and English periodicals seems at first sight disproportionately great, it will be found that the essentials of a great number of papers in German, French, Italian, Spanish, and Dutch have been supplied as well. In this volume the section devoted to tuberculosis is one of the most complete; it is interesting to see how the English and American conception of pulmonary infection in childhood is coming into line with the continental view, and how the much-debated "epituberculosis" is gradually being accorded a local habitation, though not on quite the same ground as was originally claimed for it. Amongst recently described diseases that have received increasing recognition during the past year is von Gierke's glycogenic disease, of which no less than seven cases have been reported. The editor appropriately quotes in his introduction the foreword provided by Prof. Adelbert Czerny to the new recruit to the ranks of pædiatric journals, the *Indian Journal of Pediatrics*, the first number of which was published in Calcutta in October, 1933.

The time is long past when any practising clinician can hope to read at all thoroughly the original papers in the world literature dealing even with his own specialty, but this series of Year Books will at least enable him to take note of the more important, and this volume is a good sample of their worth.

THE LANCET

LONDON: SATURDAY, AUGUST 4, 1934

THE PATIENT'S CONFIDENCE

Two months ago we expressed sympathy with the American surgeon who had been fined and imprisoned for not disclosing to the police the fact that he had treated the injuries of JOHN DILLINGER, the gunman. Our enthusiasm for a principle proved somewhat provocative. A lay contemporary was ready to ascribe the surgeon's conduct to "blue funk" rather than to an honourable observance of the oath of Hippocrates. This comment was neutralised by another from a correspondent in the State of Minnesota. Writing of matters known in England mainly through dramatic fiction or travellers' tales, he warned us that gangsters have their underworld doctors and lawyers in every large city in America. Our heroics, in fact, were misplaced; we ought to judge the surgeon by his patients; the professional advisers of the gunman are not so much terrorised as profitably involved in a nation-wide conspiracy of large-scale murder. Among other commentators the *Listener* remarked that it is a dangerous doctrine that makes the surgery a sanctuary for the criminal and "places a man's loyalty to his profession above his loyalty to the State." This antithesis is stated in a form we cannot accept. The surgeon's obligation of secrecy is not founded on loyalty to his profession but on loyalty to the public—that is to say, loyalty to those members of the public who engage his services. The *Listener* was reminded of the conflict of loyalties devised with characteristic skill by GALSWORTHY in his play "Escape." The playwright, by committing a chivalrous gentleman to Dartmoor prison for an unfortunate accident in the first scene, was perhaps unfairly careful to secure the sympathy of the audience for the criminal from the outset. John Dillinger was probably a less lovable figure than Nicholas Hannen in the play. In fact, as the *Listener* concludes, circumstances alter cases. The conclusion is irresistible. The surgeon's duty of secrecy is based on public interest, but admittedly there may be awkward conflicts, and in other matters besides crime, when fresh aspects of public policy appear. Lord RIDDELL, who has written an illuminating essay on this subject, propounded the case of the engine-driver who thinks he is suffering from nervous exhaustion. The doctor, diagnosing G.P.I., tells the patient he is not fit to drive his train; the patient disagrees. Passengers' lives being thus in peril, is the doctor justified in reporting the facts to the railway company? The usual professional solution is to say that the doctor must prevail upon the patient to disclose the facts himself. If the patient obstinately refuses, how is the deadlock to be ended? Some analogy may be discovered in the statutory duty to notify infectious diseases; statutory examination of engine-drivers might create a similar duty of disclosure. Meanwhile the instance suffices to indicate the admitted conflict. There are, as Lord Justice BANKES observed in another connexion (in Weld-Blundell *v.* Stephens), "cases where public policy is better served by respecting the confidence than by abusing it." Nobody doubts that there are also cases where a strong argument can be advanced for disclosure.

The incident of Dillinger and his surgeon leads to a special consideration of professional confidence in relation to criminal cases. Here we shall naturally find that the medical tradition of non-disclosure is unacceptable to judges, directors of public prosecutions and police. This difference of outlook has been particularly marked in the demands made upon doctors to report cases where criminal abortion is suspected—demands which the medical profession has not always felt able to concede.[1] It is worth while to clear the ground by making certain distinctions. In the first place we can distinguish the duty to answer questions in the witness-box under direction of a judge from the disputed duty to report to the police what a patient may have said in the surgery. The doctor's duty as a witness may involve breach of his patient's confidence; the judge may insist on an answer and the witness must then decide how far he can carry his protest. Here the position remains as defined by the great Lord MANSFIELD in 1776 at the trial of the so-called Duchess of Kingston for bigamy. CÆSAR HAWKINS, the celebrated surgeon, was called as a witness and deprecated answering on matters within the rule of professional secrecy. MANSFIELD delivered the decision of the court that he must answer. "If a surgeon was voluntarily to reveal these secrets, to be sure he would be guilty of a breach of honour and of great indiscretion; but to give that information in a court of justice, which by the law of the land he is bound to do, will never be imputed to him as any indiscretion whatever." If we may first distinguish the doctor's duty as an actual witness in court from the demand that he should telephone to Scotland Yard any suspicions he may entertain about his patients, there is a second distinction to be made. It is one thing to give professional assistance in a deliberate plan to commit a crime—for instance, for a doctor to help a wife to poison her husband; that would be a criminal conspiracy. It is another thing to give medical treatment to a man who may be a criminal. The law is naturally prepared to punish those who aid and abet a felony and those who harbour the felon; but physician and surgeon are in a sense non-combatants. "It seems," wrote HALE, the famous 17th-century jurist, "even by the common law, if a physician or chirurgeon minister help to an offender sick or wounded, though he do know him to be an offender, even in treason this makes him not a traitor; for it is done

[1] See, for example, THE LANCET, 1932, ii., 847, 862, 915.

upon the account of common humanity, not *intuitu criminis vel criminosi*; but it will be misprision of treason if he know it and do not discover him." The mysteries of misprision of treason we can leave aside until some registered medical practitioner is accused of the offence. In view of HALE's reminder that much may depend on the doctor's knowledge of crime or criminal, we may emphasise that suspicion is not knowledge nor is it the doctor's business to play the amateur detective. If the victim of a traffic casualty is brought to the surgery, must the patient be cross-examined as to the possibility of his having been criminally negligent? If so, it will be only fair to warn him that anything he may say in the surgeon's presence will be taken down and used in evidence against him.

The spectacular eminence of the Dillinger episode spoils the perspective. To see the principle of professional secrecy in proper proportion we must look at legal as well as medical practice. The confidences which pass between client and solicitor are absolutely privileged from disclosure. The ground of this rule, it has been authoritatively said, is not any special importance of the legal profession but the expedience of securing to every man the full protection of the laws; "a man would be practically precluded from obtaining the aid of skilled advisers if his communications with them were not thus protected from publicity." The rule is far-reaching. An attorney was once subpœnaed to give evidence and to produce certain papers before a grand jury upon an indictment for forgery preferred against one of his clients by whom the papers had been confidentially communicated to him. The court held that he was not compellable to produce the papers against his client, Lord MANSFIELD ruling that, instead of so producing the papers, the attorney ought, on receiving the subpœna, forthwith to have handed them over to the client. The privilege which English law recognises in the case of solicitor and client is no better justified than the privilege which English law declines to recognise in the case of doctor and patient. Members of the public can entrust their secrets to a solicitor with a guarantee against disclosure because, if they cannot fully confide in him, they lose the full protection of the laws. Members of the public may well demand similar non-disclosure on the part of their medical adviser lest they lose the full advantage of his advice. The judicial denial of medical privilege in England has been declared by a well-known legal text-book to be a rule "harsh in itself, of questionable policy and at variance with the practice and *code pénal* in France and the statute law in some of the United States." Advice on health is not of less public interest than advice on rights of property. For doctor or surgeon to win the patient's confidence is half the battle. The medical profession offers the public all the secrecy within its power. Unless the doctor is known to respect the patient's confidence, he will get neither the patient nor the confidence; but the principle of respect for confidence exists for the benefit of the public, not for the benefit of the doctor.

SKELETAL DISEASES OF DOMESTICATED ANIMALS

Last year, under the auspices of London University, Sir ARNOLD THEILER delivered at the Royal Veterinary College, London, three lectures on the osteodystrophic diseases of domesticated animals, and these have now been made accessible to a wider circle.[1] South Africa has offered him and his colleagues at the Onderstepoort department of veterinary research, Dr. P. J. DU TOIT and Dr. H. H. GREEN, exceptional opportunity for the study of some of these diseases. Stijfsiekte, or stiff-sickness, is a phosphorus deficiency disease of cattle. The animals most affected are heifers with the first calf, cows in lactation, and growing cattle. They may develop an intense craving for bones, known as osteophagia, which compels them to travel long distances to find carcasses, and they may even kill and eat young lambs. On the veld the sound of crunching bones may sometimes be heard in the distance. The disease shows itself in retardation of growth and abnormal skeletal development, viz., thickening of the epiphyses of the leg bones, most pronounced at the metacarpus and first phalangeal joints. The gait is stiff and lame. In the young lactating animal there is usually rapid loss of condition, the lameness may become acute, and the animal tends to walk on its heels with hooves growing out. The bones may become fragile and fracture of the ribs and pelvis has been observed. Abnormal posture results, sometimes with curved spine, and in the last stages stiffness and lameness may prevent the animal from rising, and death from cachexia ensues. In the affected areas the soil and grass are found to be deficient in phosphorus—the hay may contain less than one-fifth of the normal amount—leading to a low level of inorganic phosphorus in the blood plasma, which may contain less than 2 mg. per 100 c.cm. There is no defect however in the calcium content of the fodder. THEILER and his associates have reproduced experimentally such aphosphorosis, and have shown it to be identical with the naturally occurring stijfsiekte. Low phosphorus rations were fed to heifers 12–18 months old in all of which the disease picture was produced in spite of daily exercise in brilliant sunshine, and no matter whether the calcium ration was high or low. The inorganic phosphorus of the plasma sometimes dropped to 1·3 per 100 even before the disease could be diagnosed clinically; blood calcium was normal. Vitamin deficiency had no adverse effect. Of the affected animals dying or killed some showed brittle, fragile, or fractured ribs, the whole of the skeleton being too light. In sections of bone THEILER found osteomalacia and rickets, in some cases in high degree, the osteoid seams being extremely wide. Further evidence that the condition was one of pure phosphorus deficiency was found in the fact that the disease could be prevented by supplementing the grazing with bran, which contains much phosphorus and little calcium. The routine preventive is bone-meal, of which the

[1] Veterinary Journal, April and May, 1934.

effective weekly ration is half a pound to two pounds a head, according to growth and lactation. This simple measure not only abolishes osteophagia and stijfsiekte, but leads to an increase of milk yield, better calves, more rapid growth of young stock, and superior fattening of adult cattle.

THEILER then extended his investigations to skeletal diseases of equines, using material supplied by STURGESS and CRAWFORD from Ceylon as well as collected by himself from South Africa. He was able to confirm the view that the disease known as "equine osteomalacia" by some and "osteoporosis" by others, is not strictly osteomalacia at all, but a different pathological entity more comparable to osteitis fibrosa of man. It is properly described as osteodystrophia fibrosa. Somewhat loosely applied in veterinary literature in the past, THEILER uses these terms in their precise histo-pathological sense. Thus osteomalacia is identical histologically with rickets, being the adult variety of this disease, and is diagnosed histologically principally on the evidence of broad osteoid seams. In osteodystrophia fibrosa the seams are not widened, but the bone is extensively destroyed by osteoclastic lacunar resorption; proliferation of osteogenetic fibrous tissue is unable to keep pace with the destruction. The picture is one of fibrous bone. Within the last seven years osteodystrophia fibrosa of equines has formed the subject of experimental research in Ceylon, Japan, and the Philippine Islands. Many have supposed the disease to be of dietary origin, tradition being in their favour in the sense that "miller's disease" or "bran disease" of horses must be considered as an osteodystrophia connected with one-sided feeding on cereals or bran. Bran being poor in calcium but rich in phosphorus it was suspected that osteodystrophia fibrosa was due to an unduly wide ratio of CaO/P_2O_5. Proof of this is now to hand. A survey of the experimental data makes it clear that the main cause of the disease is a diet of low calcium, high phosphorus content; the disease may, however, occur even when the calcium appears adequate if the phosphorus is grossly preponderant.

The osteodystrophic diseases of domesticated animals—rickets, osteomalacia, and osteodystrophia fibrosa—may all be regarded as dietary diseases, even if dietary factors are not alone responsible for them. Deficiency of phosphorus leads to rickets and osteomalacia in cattle, excess of phosphorus and inadequate calcium to osteodystrophia fibrosa in equines. The animals however differ in their reactions. A ration which produces osteodystrophia in the horse does not produce it in cattle—indeed that disease is apparently unknown in the bovine. In the dog rickets and osteomalacia arise from deficiency of vitamin D. The mineral metabolism of an animal normally depends upon the harmonious interaction of the three factors: vitamin D, calcium, and phosphorus. Butwe cannot as yet predict the effect of deficiency of one of them on any particular species of animal. Different pathological pictures appear to result from identical causes, and the same picture may be presented by diseases of which the causation is different. The part played by the endocrines and the possible significance of different mechanisms in the control of mineral metabolism is a field quite unexplored in domesticated animals. In concluding his third lecture THEILER asks himself: Why does the bovine tolerate a CaO/P_2O_5 ratio which induces osteodystrophia fibrosa in the horse; and why does the equine escape osteomalacia on pastures which induce that disease in cattle? He is unable to explain. We may yet, he thinks, have to call in a concomitant disturbance of the parathyroids, the result of toxic or infectious agencies, to provide a full explanation for the ætiology of osteodystrophia fibrosa, even though at present all the evidence may be in favour of mineral imbalance as the cause. We may hope that THEILER'S work will be as successful in tracking down the different reactions of different animals to mineral deficiencies as he was in finding the causal agent, which now bears his name, of the deadly red water fever of cattle.

PROGRESS OF THE BED-BUG

As we noted last week in these columns the flea is declining. But on another page of the same issue (p. 222) the progress of the bed-bug was celebrated by its introduction as a "fundamental housing problem" into the House of Lords. As Lord CRAWFORD rightly complained, the bed-bug has suffered in the past from a taboo which has served to conceal a serious question of public health, and subsequent discussion showed that even in so well-informed a body as the House of Lords, knowledge of it is distinctly patchy. In other spheres the effects of this taboo can be surprising. It has been seriously asserted by some that to state the degree to which certain houses or districts are infested with bed-bugs is to insult our working classes; and the efforts of public health authorities to reduce this infestation have been condemned by others as unwarranted interference with the rights of (human) individuals. In the debate referred to, Lord CRAWFORD created the impression, unintentionally no doubt, that the bed-bug is a problem chiefly in new houses. That, of course, is not the case. In old-standing slum areas in London, obvious infestation has been shown to exist in 90 per cent. of the houses, the actual infestation being probably nearer to 100 per cent. But since the landlords of many of the new houses are themselves those same public authorities who are concerned in combating the bed-bug, it has come to them as something of a shock to discover that many types of council houses, with ceilings and partitions of asbestos sheeting concealing open spaces behind, provide in fact ideal haunts for the bed-bug—haunts which it is not slow to colonise, and from which existing measures of fumigation and so forth seem powerless to expel it. It is this accident of modern construction which has brought the bed-bug to the fore. Perhaps some simple modifications in construction may defeat the bed-bug in the future. Housing schemes cannot be indefinitely suspended until such methods have been evolved, but anyone familiar with the magnitude and com-

plexity of the problem will endorse Lord CRAWFORD'S plea that a few pounds devoted to research along insecticidal and biological lines, as advocated by the Ministry of Health's own committee,[1] would be well employed. At the moment the difficulties appear so great that the prospect is depressing. But when one recalls that, little more than a hundred years ago, probably all houses in this country harboured a greater or lesser number of bed-bugs, whereas at the present day, even in London itself, at least a quarter of the houses seem to be free of them, there is ground for hope that the inculcation of cleanly ideas and practices, coupled with more strenuous activities on the part of the sanitary authorities, may in time reduce the incidence of this infestation still further. That the community, from the House of Lords and the Ministry of Health downwards, should have become what Americans would call "bed-bug conscious" is an important step.

[1] Reports on Public Health and Medical Subjects, No. 72. The Bed-bug. H.M. Stationery Office. 1934. 1s.

ANNOTATIONS

THE CASE OF THE DEAF

DEAF people, as has been frequently pointed out, receive little of the profuse sympathy expended on the blind: but is their deprivation lighter? The blind person gives less trouble to those about him than the deaf, though this may not be immediately obvious. He must be led, it is true, but all love to lead him, whereas a deaf person cannot be helped thus easily. If he has some hearing capacity others feel ridiculous when going to his aid by shouting at him—they do not shout because they are angry, as those around may assume, but, alas, they sometimes get angry because they are shouting. And the totally deaf subject throws another sort of responsibility upon his companions; they must speak always facing him, so that he can watch their lips, and their attention may be strained to follow his speech. Few have sufficient courtesy and patience to make the deaf feel that their disability is of small account, and consequently many deaf persons live cut off from much normal intercourse. The situation has been forcibly and beautifully put by Miss Margaret Monro in a small book addressed to the deaf and their friends, illustrating how much the deaf can help themselves, but how much self-help depends on the intelligent sympathy of their environment. To a great extent most of what follows forms a comment on Miss Monro's words, which should be read by all who appreciate what general society loses through the existing apathy towards the deaf among us.[1]

No special legislation exists to protect the interests of the deaf apart from that which entitles deaf children to suitable education. So far their cause has been chiefly the concern of the National Institute for the Deaf, a voluntary body, and of the Counties Associations for the deaf, affiliated to it, and including in their membership both voluntary societies and those local authorities sufficiently interested to join. The National Institute for the Deaf is maintaining three organisations for deaf women and working deaf boys, and acts as a clearing house for the work of the County Associations; it is largely administrative. How the deaf are helped, and how they may help themselves, is well set out in "All About the Deaf," a handbook of information published by the Institute.[2] This is a revised edition of a previous publication issued in 1929, and Lord Charnwood, the president of the Institute, lays emphasis in his preface on the distinction between the cases of the deafened and the born deaf with whom the prevention of deafness has not to be considered, while this is one of the chief objects for which the Institute exists. The handbook contains lists of ear hospitals, homes maintained by the Institute, and other homes and hostels for the born deaf, schools and welfare societies, schools for the partially deaf—a scanty list—training schools for teachers, scholarships for the deaf, and societies granting pensions. It also includes authoritative articles upon the ascertainment and prevention of deafness, the use of the gramophone and audiometer and upon the development of speech in the child born deaf. A section is devoted to existing legal provisions which at present are solely devoted to the educational needs of deaf children. No State inquiry into the conditions of the deaf had been made since 1886 until the Ministry of Health and the Board of Education, in 1930, appointed Dr. Eichholz "to obtain fuller information than is at present available on the position in industry of deaf and dumb persons and of the facilities for their education and training and securing employment." This report was published in 1932, and the recommendations from it are printed in the handbook and criticised in two memoranda, drawn up by the Institute and by the National College of Teachers of the Deaf respectively. Both deprecate the lukewarm tone of the report, for though they value it as embodying the result of the first investigation by the State into the needs of the deaf over school age, they feel that far too little attention has been given, in it, to the needs of the deafened, who form a much larger class than the born deaf. Members of the Institute are anxious to see the compulsory school age lowered to five years for children born deaf, for if speech is to be acquired it must be acquired young; at present these children need not attend school until the age of seven. For deafened children they would like to see an extension of suitable educational provisions and opportunities for school leavers to acquire vocational training. Earlier old age pensions for those who through deafness are unable to support themselves by their own labour would bring the deaf into line with the blind, and a request for this reform seems just.

These, and other proposals, were discussed at length at a conference of the Institute and the Counties Associations held last December, under the chairmanship of Lord Charnwood, the proceedings at which have just appeared.[3] The practical outcome of Dr. Eichholz's report, so far, has been the issue of two circulars by the Ministry of Health: one of these urges local authorities to make use of the powers they possess to contribute to associations in aid of the deaf and dumb, so helping them to place their beneficiaries in employment; the

[1] Breaking out of Prison. By Margaret T. Monro. London: Methuen and Co., Ltd. 1934. Pp. 116. 3s. 6d.

[2] All About the Deaf. London: The National Institute for the Deaf, 2, Bloomsbury-street, W.C. 1934. Pp. 122 and xxiv. 3s. 3d.

[3] Proceedings at a Conference held on Dec. 14th and 15th, 1933, between the National Institute for the Deaf and the Counties Associations for the Deaf. London: National Institute for the Deaf, 2, Bloomsbury-street, W.C. Pp. 54. 2s. 6d.

second circular, addressed to maternity and child welfare authorities, draws their attention to the importance of the early treatment of ear disease following the exanthemata due to nose and throat defects. The feeling of the conference as revealed by the published procedure was that these circulars urging, as they do, only a more extended use of existing provisions, do not go nearly far enough. Mr. Maurice Birley, chairman of the Institute, thought that existing provisions, in so far as they were compulsory, began too late and ended too early, being only concerned with nine years of a deaf person's life. The conference was strongly in favour of asking for a "Deaf Persons Act" which should guard the interests of the deaf in much the same way that the interests of the blind are guarded. Dr. James Kerr, representing the Scottish National Association for the Deaf, remarked that a large number of deaf people begin to go down after middle age and end as dependants: eight times as many deaf people as normal people are admitted to workhouses; it would be cheaper to help them to help themselves than to support them outright in this way. A Deaf Persons Act need not involve nearly as much national expenditure as the Blind Persons Act, because the blind must usually spend their whole working life in workshops, whereas the deaf, when trained, can find a place in the regular labour market. The three publications, here reviewed, set out the arguments for such an Act clearly and without padding or gush; they deserve the attention of all.

THE BLOOD IN PREGNANCY

FROM elaborate examination of the blood in normal pregnancy Dieckmann and Wegner[1] conclude that there is an increase in both blood and plasma volume beginning in the first trimester. At term the average increase in volume is 23 per cent. and in plasma 25 per cent., and at eight weeks postpartum there is an average decrease of 16 per cent. in both. These workers describe, as others have done, a definite decrease in the percentage of hæmoglobin, the number of red cells for 100 c.cm. of blood, and the volume of packed red cells. This decrease is, they claim, only relative; if the absolute figures are considered instead of percentages there is an increase both in hæmoglobin and red cells. The increase in plasma volume, however, is greater, so that the hæmoglobin and red cells show a relative decrease and absolute increase. Dieckmann and Wegner think this increase in blood and plasma volume and decrease in serum proteins, red cells, and hæmoglobin to be an effort on the part of the body to reduce the viscosity of the blood and thus to reduce the amount of work done by the heart, while at the same time the increased maternal tissue and the fœtus are adequately supplied. In fact they seem to support the old theory of an apparent physiological anæmia of pregnancy. The patients they investigated were, however, from the hospital class, and in view of the high incidence of chronic iron deficiency anæmia in women of this class and of the demands made for iron during pregnancy it appears possible that the degree of apparent anæmia that they record as physiological is really due to an insufficient intake of iron. Only further research can settle this point. They suggest that a hæmoglobin under 10 g. per 100 c.cm. of blood should be regarded as pathological, and since they accept Wintrobe's figure of 14·3 g. per 100 c.cm. as normal their pathological level is a low one. They also describe a fall in serum proteins per kilogramme of body-weight, and an increase in the total amount of serum protein, accompanied by an increase in plasma fibrin. The variations in plasma cholesterol in the same women is, they state, "enormous." There is an increase in cholesterol both per kilogramme of body-weight and when calculated in absolute figures, and this increase they consider to be associated "with other changes in the chemical equilibrium, which is so markedly disturbed in pregnancy."

[1] Dieckmann, W. J., and Wegner, C. R.: Arch. Internal Med., 1934, liii., 71, 188, 342, 353, 527, and 540.

RESEARCH ON CANCER

THE Cancer Control Organisation for Edinburgh and South-East Scotland was founded with the object of encouraging and coördinating clinical, pathological, and statistical research on cancer, of facilitating the earlier diagnosis and treatment of the cancer patient, and of establishing an efficient follow-up system for each case. The booklet[1] of 72 pages before us is the first report of the organisation, and it is intended to submit a similar report every year. The organisation has the support of many of the leading clinicians and pathologists of Edinburgh and the surrounding district. Mr. J. J. M. Shaw, chairman of the executive committee, gives in a few pages a clear exposition of the present state of the cancer problem as it affects man and explains the scheme of the organisation, which aims at obtaining a record of the treatment and results of every cancer patient in the area. The collaboration of the general practitioner is assisted by the provision of vouchers, which enable him to send necessitous patients without expense to Edinburgh for purposes of diagnosis, treatment, or for subsequent appearances at the follow-up department. The booklet contains the results obtained since 1930. The clinical material is divided according to sites in clear tabular form, with short explanatory remarks. With the lapse of time the reports will greatly increase in value by giving clear evidence of the efficacy of the different forms of treatment adopted for each site. The work of the organisation is to be welcomed. Its annual cost is estimated by the Marquis of Linlithgow, one of the hon. presidents, at £5000. Since the results will benefit the general public the organisation deserves a liberal financial support.

[1] Edinburgh: E. and S. Livingstone.

THE DEFINITION OF BLINDNESS

THE number of people on the blind register on March 31st, 1933, was 63,408. This figure necessarily depends on the definition and arrangements for certification. In its annual report[2] the Advisory Committee on the Blind recalls that the Minister of Health has repeatedly emphasised the desirability of having the examination made by medical practitioners specially skilled in ophthalmology. In a circular issued last October he entered more fully into particulars.

> A medical practitioner with special experience in ophthalmology should be taken to mean one "who devotes his or her whole time to the practice of ophthalmology in all its branches or who is in charge of the ophthalmological department of a general hospital of not less than 100 beds; failing such practitioner, one who holds a diploma in ophthalmology from a university (or other examining body recognised by the General Medical Council)."

This recommendation has now been adopted by 30 county councils and 47 county borough councils, and others are following suit. The chief difficulty, of course, is with the borderline cases. According

[2] Eleventh annual report of the Advisory Committee on the Blind. London: H.M. Stationery Office. 1934. 4*d*.

to the official definition, a patient with vision between 3/60 and 6/60 with full visual field is not to be certified as blind, even though he has nystagmus. He is not, it may be said, debarred from some occupation for which eyesight is essential, such as some sorts of work on a farm, but in the present economic condition of the country the chances are that he will drift into the army of permanently unemployed. These cases form a difficult problem for the certifying surgeon, and it is quite possible that where one surgeon would refuse another would consent to certify. Would it not be a good plan for these surgeons to get together and compare notes about their actual practice, and for the Minister of Health to confer with them once more?

THE EXPANSION OF THE R.A.F.

THE Air Ministry has announced a new system of entry designed to increase the number of pilots in the Air Force Reserve. The system provides for free flying tuition, and vacancies will occur for 40 candidates for direct appointment to commissions. Those only for the present will be eligible who have served in one of the squadrons maintained at Oxford and Cambridge and have obtained some flying experience and the certificate of efficiency. The selected candidates will commence their training at various dates in September at one of the reserve flying schools and the initial course will consist of a fortnight's instruction and 50 hours' flying, which would normally occupy about seven weeks. In addition to these 40 appointments applications are invited from civil pilots up to the age of 28 who are experienced up to the point needed to pass a qualifying test. There is no mention of the necessity of having passed any physical examination or of successful submission to any psychological tests. Perhaps both the civil pilots and the University candidates will be considered by previous training to have already satisfied official scrutiny in these respects, but the fact is not mentioned in the communiqué from the Air Ministry, while assuredly the public will expect reassurance on the point.

RADIOGRAPHY OF THE SELLA TURCICA

THE form of the sella turcica is affected not only by tumours of the pituitary body but also by tumours in its immediate neighbourhood and in remoter parts of the intracranial cavity. These changes have been analysed in considerable detail by Dr. Felix Smith[1] in a radiographic study of 500 cases of intracranial tumour at Prof. Brouwer's neurological clinic in Amsterdam. Abnormalities in the sella were found in 72 of them. A precise correlation between the type of sellar enlargement and the disposition of the tumour which is responsible for it appears, however, to be impossible; there is too much variability in such factors as the rate of growth of the tumour and the possibility, in young subjects, of compensation by widening of the sutures.

The pituitary adenomata cause in general a destruction of the floor, dorsum, and posterior clinoid processes of the sella without other radiological evidence of increased intracranial pressure. In this connexion it is noteworthy that P. Puech and L. Stuhl,[2] working at Vincent's clinic, report that they are able to distinguish radiologically between chromophobe and acidophil adenomata. In the former, they say, the sella turcica is enlarged in all dimensions but especially in the antero-posterior, while the bony walls of the sella are greatly atrophied. In the acidophil adenomata, on the other hand, the increase in the size of the sella is principally in the vertical direction and the walls, even while showing evidence of erosion, are thick. They attach great importance to the observation of an increased prominence of the tuberculum sellæ in the acidophil type and consider that this "bec acromégalique" (as they term it) is a diagnostic feature. At the same time it must be remembered that intracranial tumours, other than pituitary adenomata, may produce a very considerable destruction of the sella. Thus Smith has found that 58 per cent. of cases of supratentorial meningiomata and 52 per cent. of supratentorial gliomata gave rise to enlargement of the sella. In the gliomata this change was observed rather more often in the radiograms than were digital impressions and widening of the sutures—that is to say, evidence of a general increase of pressure. The combination of these general pressure signs and enlargement of the pituitary fossa is commoner in adults than in children, because in the latter compensation takes place through thinning of the cranium and separation of its sutures. Smith concludes that "a radiograph showing an enlarged sella in the presence of well-marked signs of increased intracranial pressure is almost certainly not that of a case of pituitary adenoma, and this even when the fossa is enlarged to the point of obliteration of the sphenoid air sinus and complete destruction of the posterior clinoid processes and the dorsum sellæ."

INDUSTRIAL HEALTH

THERE is so much medical research into diseases, their causes, treatment and prevention, that we are liable to forget the need for knowledge relating to health. The latest report[1] of the Industrial Health Research Board reminds us that study of health reveals more problems than it solves. Data are lacking about the physical condition of the working population as a whole, and about the incidence and kind of ill-health experienced in various occupations. Initial difficulties include the establishment of norms of physical fitness and of rates of sickness; indeed, the Board has to devise its own methods of approach and its own technique for each problem. Output, at best an indirect measure of activity, is no longer a sufficient criterion of health; yet it remains the only one available, except when some specific occupational disorder is under examination. An extension in the near future of firms employing their own medical staff and keeping records in comparable forms, seems to be the only hope for answering such a question as "Do puddlers suffer in excess from rheumatism?" Meanwhile, useful inquiry continues into environmental conditions. Improved lighting as tile-pressing gave an increased output ranging from 6 to 14 per cent.; noise has been shown to hamper the performance of weavers; warmth, ventilation and radiant heat affect the comfort of workers and can be scientifically adjusted. Physical data are being collected concerning men in different industrial occupations, and renewed attention is being directed to the psychological conditions of employment, such as personal reactions, likes and dislikes. Not least important of the investigations in progress is into accident proneness, which has already proved of such value and interest. The Board has done good work in the past, and the principles enunciated are steadily, though slowly, being adopted in practice; but much remains to be done in order to establish normal ranges of human physical fitness for different kinds of

[1] Birmingham Med. Rev., June, 1934, p. 66.
[2] Presse Méd., July 11th, 1934, p. 1131.

[1] Fourteenth Annual Report of the Industrial Research Board to June 30, 1934. London: H. M. Stationery Office.

work, and the psychological cause of discontent and ill-health. While efforts on these lines are being made in this country, the progress of industrial medicine in civilised nations is watched by the International Labour Office at Geneva. Its report [1] for 1933 shows that world-wide action is being taken to prevent industrial poisoning from lead, mercury, phosphorus and other toxic substances, and that much is being done to meet the spread of anthrax and the ravages of silicosis, ankylostomiasis and occupational cancer. Legislation to protect women and children employed in industry is now in force in most countries, including Japan, India and China. It is fairly clear that unemployment and depression have led to malnutrition and morbidity in direct proportion to the non-existence in any country of social legislation on the lines of unemployment insurance, and throughout the report recognition is given to the part played by Great Britain in initiating and furthering industrial hygiene.

SERUM TREATMENT OF ACUTE STAPHYLOCOCCAL INFECTIONS

Dr. C. E. Dolman's work on the treatment of acute staphylococcal infections has been attracting a good deal of notice in Canada, and it is interesting to see the first two instalments of his report on it.[2] The results obtained in his 104 cases are summarised in the first paper, while the second provides a more detailed description of 40 in which blood culture was negative. The striking difference between the mortality in these "negative culture" cases (4 deaths among 40), and in the "positive" (35 among 64), shows that staphylococcal antitoxin cannot be expected to work miracles in face of an established septicæmia with multiple metastatic abscesses. The same is of course true of every other anti-serum—they are all of greatest service when employed before the disease has progressed too far—but it applies with special force to staphylococcal infections, because in these every secondary lesion means tissue destruction and the formation of a new abscess. In Dolman's series, as in others, it is exceedingly difficult to form a definite estimate of the effect of the antitoxin, because no two cases of severe staphylococcal infection can be reasonably compared. Since no satisfactory controls can be provided, one has to rely mainly on clinical evidence of improvement. Such evidence is by no means always reliable, but in the present cases it seems to indicate that antitoxin is of real value; and the significant fact appears that clinical improvement was commonly accompanied by an increase in the antitoxin content of the patient's serum. Amongst the more severe cases are 32 of acute osteomyelitis in children, in which blood culture was positive before operation, and Dolman makes the extraordinary statement that the usual mortality in such cases is approximately 50 per cent.; whereas in this country it is held by many that in osteomyelitis a positive blood culture before operation is so common as to have little prognostic significance. The serum was usually given intramuscularly, since it was found that intravenous injection gave rise to serious reactions, and the dosage was very variable. Superficial infections, such as carbuncle, seemed to respond as a rule to less than 100 c.cm.; in other cases, with a more general type of infection, the amount given was sometimes very large, reaching a total of 600 c.cm., but there were some examples in which pyæmia and toxæmia appeared to respond excellently to moderate quantities. Dolman rightly insists that the serum should be given at the earliest justifiable moment, and this presumably would tend to obviate the necessity for very large doses. In his first paper he describes the preparation of the serum, and in setting forth the various properties of staphylococcal toxin makes out a strong theoretical case for using the remedy; but in this section the criticism can be made that although he recognises the importance of staphylococcal leucocidin in the pathology of the infection, he does not seem to have tested his antiserum for its ability to neutralise this factor—the production of which by different strains does not run parallel with the production of hæmolysin. Although, however, the papers may be in some respects open to criticism, they deserve serious attention, especially perhaps from clinicians, who are apt to regard all "antisera," with one or two exceptions, as of little value, if not actually dangerous. Although the use of staphylococcal antitoxin can never take the place of skilful surgical intervention, it may often be of great assistance in combating infection and limiting its spread.

[1] Industrial Medicine in 1933. International Labour Office Year-Book, Geneva. 1934.

[2] Canad. Med. Assoc. Jour., June and July, 1934

THE AMBULANCE WORK OF THE ORDER OF ST. JOHN

THERE is confusion, it seems, in the minds of many as to the constitution of the Order, and particularly as to the distinction between the St. John Ambulance Association and the St. John Ambulance Brigade. This is a pity. The primary object of the Association is the instruction of persons in first aid and kindred subjects; and that it has achieved its purpose is shown by the fact that since its inception it has issued over 2½ million certificates to students successful at its examinations, and this figure increases annually by some 40,000 or 50,000. Thus there will be found in the ranks of the police, on the railways and other forms of passenger transport, in mines, in industry, in fishing vessels, in lighthouses and among coastguards persons trained to give first aid properly. So valuable has this expert knowledge proved that qualification in its principles is often insisted upon by employers of labour and the subject has been introduced into the curriculum of schools and education establishments.

The dividing line between the Association and the Brigade is that the former issues the text-books of the Order, arranges for lectures and examinations, grants certificates to those who pass, and teaches the practice and principles of first aid to the different classes of the community just enumerated. But the certificated persons all use their first aid knowledge on the premises where they are employed, in other words the lost time is the employer's time. The Brigade give their services away from the place of employment, in their own time and at their own expense. This is a body of voluntary unpaid workers of whom there are in this country some 60,000 men and women, and overseas some 15,000. They practise in their spare time so that they may retain and improve their knowledge of first aid, and they give up their leisure in the evenings and at week-ends and holidays to the service of the public.

The call on the services of the Brigade to-day has been made acute by the development of motoring, bringing a sad roll of accidents in its train. The motor abuses are being treated homœopathically by the motor ambulance service of the Brigade. This can now set over 250 ambulances in action and so relieve the local police in the case of street and road accidents, in addition to transporting ordinary medical cases to centres of treatment.

CALMETTE'S ORDEAL

To the July number of the "Annals of Medical History" (New Series, Vol. 6, No. 4) Dr. K. E. Birkhaug, of Paris, communicates a short biography of Calmette to which we must apply the familiar adjective of charming. Both the facts of Calmette's wisdom and the traits of Calmette's character are brought out clearly, and certain passages in which the hardships inflicted on the French population by the German invaders in the early part of the war are illustrated by the methods employed to involve Calmette in charges of espionage which, if established, would have cost his life. When he was taken prisoner in his laboratory at the capture of Lille, he was accused of sending wireless messages to the French headquarters, it being suggested that his experimental pigeons were employed as messengers. His laboratory was ransacked and (damning fact) certain of his pigeons were found to be ringed with serial numbers. These pigeons, Calmette declared, were being employed in an investigation into the transmission of fowl tuberculosis, but the explanation was received with incredulity and the pathologist was placed under a threatening guard. Never was the value of keeping orderly records more dramatically shown. Calmette's files were searched through, and the bill of purchase of the birds was found, proving that the birds when delivered were already distinguished by serial numbers. The numbers could not therefore have reference to any secret code. An autopsy of the birds was ordered and was performed by a German pathologist, but only one pigeon was examined. It proved to be tuberculous and the accusation against Calmette was withdrawn but without apology. Calmette's comment is curious. "Fate," he said, "has played me a great boon, for among all the pigeons inoculated with the tuberculous material the pigeon examined was the only one that had contracted tuberculosis."

FINANCIAL SITUATION OF THE LONDON VOLUNTARY HOSPITALS

IN its annual statistical review of last year,[1] King Edward's Fund is able to record two remarkable facts. In the first place the total maintenance income of the London voluntary hospitals exceeded £4,000,000—which is unprecedented. Secondly, and perhaps more important, the number of hospitals with surpluses was higher than ever before, while the number and aggregate total of deficits were lower than ever. The voluntary gifts to the maintenance of the 145 hospitals covered in the review amounted to £1,830,000, or £133,000 more than in 1932. This was due to an increase of £152,000 in legacies, and these of course fluctuate in amount, though they have never in the last five years been less than £357,000. When receipts for building and endowment are included, the sum of the voluntary gifts in 1933 was no less than £2,239,000, an increase of £65,000 over 1932, while "receipts for services" again showed an advance, reaching a total of £1,536,000. The increase of £167,000 in the total income of the year more than covered the small increase of £29,000 in maintenance expenditure, and the net result was that the aggregate surplus of income over expenditure was £242,000, the highest recorded for ten years. Again, the number of hospitals with surpluses increased from 85 to 98, and those with deficits decreased from 60 to 47; the total amount of the surpluses rose from £201,000 to £303,000, and the total amount of the deficits fell from £97,000 to £61,000. The authorities of the Fund have good reason to congratulate themselves on these figures, which testify, it is held, how well in the aggregate, throughout the recent years of financial pressure, the current needs of the hospitals have been met, and how much has been done to improve and extend their accommodation and equipment.

[1] Statistical Review of the Work and Finance of the London Voluntary Hospitals for the Year 1933. King Edward's Hospital Fund for London. July, 1934. Pp. 32. 1s.

RADIOTHERAPY OF UTERINE CANCER

IN connexion with the international congress of radiology just concluded at Zurich, the Health Organisation of the League of Nations convened a conference to advise on the further prosecution of its international inquiry into the results of the treatment of utrine cancer by radium and X rays. At this conference, which met from July 21st to 23rd, Sir George Buchanan and Dr. Boudreau represented the Health Committee of the League, and the experts attending included Sir Comyns Berkeley and Colonel A. B. Smallman (England), Prof. Lacassagne (France), Prof. G. Forssel and Dr. Heyman (Sweden), Prof. van Rooy and Dr. Jansen (Holland), and Prof. Murdoch (Belgium). The Conference recommended that statistical statements with commentary should be annually issued, beginning next year, and relating especially to survivals for a minimum period of five years after the initial treatment. The principal object of these statements is regularly to present statistical information about the results of radiotherapy applied to patients suffering from cancer of the cervix at different stages when certain agreed rules for compilation of the data have been observed. It is proposed that the data should be obtained through special correspondents in different countries, and that the annual statements should be prepared under the advice of a small advisory council appointed by the Health Committee of the League.

FACTORIES AND WORKSHOPS

THE annual report of the Chief Inspector of Factories and Workshops for 1933 is published this week (H.M. Stationery Office. 2*s*. 6*d*.). It includes a general description of industrial development, numerical summaries of the accidents falling under the indicated headings, notes on the safety organisations, and on the accident rates in the different industries. Sections on health and employment precede one describing certain large welfare schemes, and the report closes with a series of tabular statements supporting the general conclusions of the document.

INDEX TO "THE LANCET," VOL. I., 1934.

THE Index and Title-page to Vol. I., 1934, which was completed with the issue of June 30th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

LARGE BEQUEST TO A COTTAGE HOSPITAL.—It is now announced that the sum payable to Melksham Cottage Hospital, Wiltshire, under the will of the late Mrs. L. Ludlow-Bruges will be nearly £196,000. The hospital has at present 30 beds and its invested funds are about £2000.

PROGNOSIS

A Series of Signed Articles contributed by invitation

XIII.—PROGNOSIS IN INJURIES OF THE ELBOW-JOINT

INJURIES about the elbow-joint give rise to more anxiety than those involving any other joint in the body. Permanent stiffness will result in a certain proportion of the cases in spite of the utmost skill and care. No joint is quicker in taking advantage of the slightest error of judgment on the part of the surgeon. Complications, some of them rarely seen elsewhere, are not very uncommon, and these may be extremely serious. On the average dislocations involve a greater risk of permanent limitation of movement than fractures, though the most serious of all complications, ischæmic paralysis, usually follows a fracture. Some of the minor fractures—e.g., of the radial head, and of the coronoid process, and separation of the internal condyle, are produced by what we might term attempted dislocation, the whole joint being severely wrenched. This explains in some cases the unexpectedly poor results, though the excessive amount of swelling should have warned the surgeon of the true nature of the damage.

In children the supra-condylar fracture of the humerus is the commonest lesion. Transcondylar fractures and separation of the epiphysis are much less common and demand no separate consideration. The fracture is very rarely compound, and if it is—the skin wound is usually no more than a puncture—the prognosis is but little affected. It is of paramount importance that in all these fractures the displacement, often considerable, should be corrected without delay. If the reduction is at least fair, if not perfect, and as a result flexion is obtained without undue force, and is maintained for a sufficient time, the prognosis in the vast majority of cases is excellent. It is essential, however, that after fixation for four weeks, movement should be restored only by relaxation of the fixation apparatus and by encouraging active use of the arm: all passive efforts to extend the joint must be avoided. Too vigorous treatment by an ambitious masseur alone can be responsible for a disastrous result unless the error be discovered in time. The worst mistake that can be made is to give an anæsthetic and forcibly to extend the joint. Such treatment invariably makes matters worse and produces the opposite effect to that anticipated. Supposing the lower fragment is still displaced behind the upper and yet, in spite of the risk, flexion well above a right angle has been achieved, the final result, although in jeopardy, is by no means hopeless. Some of these cases in which the "setting" of the fracture has failed, nevertheless give good results.

Operative reduction in a difficult case should only be considered within the first few days. Late attempts—i.e., after the first week at the most, to correct displacement by open operation are to be condemned; the prognosis will be worse rather than better after such interference. In a case seen some weeks after the injury with flexion checked by the displaced upper fragment, the outlook as regards full flexion, though bad, is not hopeless. In some cases, at any rate, as a result of absorption of the bone in front, full flexion may be gradually restored in the course of several months. Although this happy progress cannot be relied upon with confidence, the possibility should always be waited for. A not uncommon error in the setting is a tilt inwards of the lower fragment, which eventually produces the gun-stock deformity, or cubitus varus. This can be revealed by X rays after setting, and should always be looked for; an effort should be made to overcome it by a second manipulation, though this is difficult. If it is not detected till later, it is better not to operate, but to wait till extension is restored and then see whether the degree of deformity warrants osteotomy. This deformity sometimes causes considerable inconvenience, besides being unsightly.

Fracture of the elbow-joint may involve injury to one of the main nerve trunks. As a rule complete recovery follows conservative treatment. Very rarely the median nerve is gravely damaged or even divided.

TWO GRAVE COMPLICATIONS

Besides limitation of movement due to fibrosis of the capsule or permanent displacement of the fragments, two grave complications may be met with: (1) ischæmic paralysis or contracture, and (2) myositis ossificans.

Ischæmic paralysis.—This is usually associated with an excessive amount of swelling, and almost without exception a considerable degree of unreduced displacement. Possible contributing factors are flexion of the joint beyond the limits of safety under the circumstances, and tight bandaging. The complication can be avoided by adequate reduction of the displacement, by not flexing the joint till this is achieved, and by fixing the forearm at an angle somewhat lower than it is possible to flex it without undue force. Though the ischæmia is now said to be due to acute venous obstruction, feeling the radial pulse at the wrist when the joint is setting is a useful guide. If, in spite of every care, signs of ischæmia develop, considerable improvement may be achieved by freely incising the deep fascia and thus relieving tension: the degree of flexion should be reduced and the arm placed on a pillow. By these means a case with a very black outlook may eventually give an excellent result, at any rate so far as ischæmic contracture is concerned. If the condition is well established the prognosis is undoubtedly very bad Though gangrene, except for a patch of skin, is uncommon, complete recovery from any but the mildest degree of this complication is impossible.

In so-called *myositis ossificans*, calcification and ossification occur in the capsule or muscles or both. Here again the early recognition and prompt treatment of the condition have a profound influence on the result. This is true of children to a far greater extent than of adults, in whom the prognosis is much less favourable. If the complication is recognised early in a child and promptly treated by complete and absolute fixation of the elbow, the opacities seen in the X ray often disappear within a few weeks, and the result may be still be perfect. If, however, abnormal shadows are seen both in front and behind, if the true nature of the trouble has not been recognised early, and particularly if it has been aggravated by injudicious attempts to force a return to mobility, then the outlook as regards mobility is extremely bad. However, even in such cases patience may eventually be rewarded. In adults the response to prompt treatment is usually disappointing, and the prognosis is much less promising, though even here movement may return after many months of fixation. Removal of the new-formed bone in the early months is worse than useless. Later, operation offers a

chance of increasing the range of movement, but anything approaching a perfect result must not be expected. This complication is also met with after dislocations.

DISPLACEMENT OF THE CONDYLES

Separation of the internal epicondyle is probably produced by forcible abduction of the forearm, and therefore the joint may have been severely wrenched; if treated by simple flexion, as a rule the prognosis is good. The desire to avoid even the slightest disability in a lad who has shown an exceptional aptitude for games may justify operation. Occasionally the separated epicondyle is sucked into the joint and caught between the humerus and ulna, and this may occur with or without complete dislocation. Open operation is usually necessary and the prognosis is not quite so good as in simple cases. The ulnar nerve may be bruised, but usually recovers after the operation. Condylar fractures which involve the articular surface, are more serious. The external condyle is more commonly displaced in children, and, as a rule, the loose fragment is rotated on an antero-posterior axis, often through an angle of more than 90 degrees. This calls for open operation: the result, though good, is often imperfect. When the true nature of the lesion, particularly as regards the rotation of the condyle, has been overlooked, the result may be surprisingly good in spite of the fact that union has failed to occur. The carrying angle will be accentuated. By the time middle age is reached osteo-arthritic changes will be giving trouble, while in addition there is always present the possibility of neuritis of the ulnar nerve. This complication may commence many years after the fracture. Fragments chipped off the head of the radius and displaced should be removed without delay; the outlook is then good. If their removal is delayed, when superior judgment should have led to their removal earlier, the result is much less favourable.

FRACTURE OF THE NECK OF THE RADIUS

The final result in fracture of the neck of the radius depends on the ability of the surgeon by open operation to restore the head to something very close to its normal position. The younger the patient the more likely is this to be achieved. If it has been found necessary to remove the head of the radius, permanent weakness may result: later osteo-arthritic changes are inevitable. In a child, when the head cannot be restored to perfect position, and yet its removal is considered unnecessary and inadvisable, a guarded prognosis should be given. The result may be good, but is often imperfect.

DISLOCATION

Dislocations in children as a rule do well, and even in adults the results are often surprisingly good. Each case, however, should be regarded as one of potential myositis ossificans and treated with the utmost gentleness after reduction. In dislocation of the radius alone, the results depend on the early course of the case. If dealt with promptly, and successfully, the reduction being apparently stable and easily maintained by simple flexion, all should be well. If, on the other hand, delay has occurred before reduction is attempted, or, when attempted, difficulties are encountered and, though apparently reduced, the head is unstable, and when perhaps a second anæsthetic is given for further efforts to be made, permanent impairment of function to a varying degree is certain to occur, particularly in adults. Periarticular calcification and ossification can occur with surprising rapidity in some of these cases.

COMMON FRACTURES IN ADULTS

In adults the common fractures involve the olecranon, the head of the radius, or the coronoid process. *Olecranon* fractures with displacement are treated as a rule by operation and give excellent results. The probability of osteo-arthritic changes depends largely on the operative skill of the surgeon. Even in elderly patients the results without operation and with movements commenced not later than four weeks after the fracture may be all that they require. Fractures of the *head and neck of the radius*, whether operation is deemed advisable or not, do fairly well if treated by early active movements and massage—i.e., as soon as the wound has healed if operated upon and sooner if not. Fractures of the *coronoid* probably result from "attempted dislocations"; the severity of the general damage to the joint and the degree of the resulting swelling determine the final result. The more severe the injury appears to be the greater the need for initial rest and extra care in restoring mobility. It is unwise in an adult to maintain flexion above a right angle for more than a fortnight.

LESS COMMON FRACTURES

Of the less common fractures, a *transverse juxta-articular fracture of the humerus* is always difficult to treat, since any attempt to move the elbow before union is firm only results in bending the callus and delaying the union. T and Y fractures should be treated by operation and, if possible, fixation of the fragments, so that movements may be commenced reasonably early. Much depends on the skill of the surgeon and the accuracy of the replacement. These are grave fractures and, on the whole, the results are far from perfect. Severe trauma to the elbow, even in the absence of clear evidence of fracture, may lead to the formation of loose bodies in the joint, with impairment of function and a varying degree of disability. This is more commonly seen in adults than in children. In some cases the capitellum is broken away and displaced forwards and upwards. Its prompt removal—it is rarely possible and wise to replace and fix it—leads to a fairly good early result, but eventually, as after removal of the radial head, it is certain to be marred by osteo-arthritis. In assessing the degree of disability likely to occur after a particular injury of the elbow-joint, the sex, occupations, and work of the patient should be given every consideration.

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ROYAL SEA-BATHING HOSPITAL, MARGATE.—The report of this hospital for 1933 shows that the average daily number of occupied beds was 308, the same, within a minute fraction, as in the preceding year. The average cost per occupied bed was £117 19*s.* 11*d.*, as against £122 18*s.* 10*d.* in 1932. The medical superintendent, Dr. R. W. Armstrong, reports that the proportion of cases discharged as "quiescent" reached the satisfactory figure of 77 per cent. for those suffering from surgical tuberculosis, and 61 per cent. for the non-tuberculous. The latter group comprised a considerable number of cases which were not susceptible of cure. Last summer there were few days on which heliotherapy was unable to be practised. He adds: "There were long periods, however, when wind, which is ordinarily so characteristic of the climate of Thanet, was completely or almost completely absent, and it was noticeable that during these periods many patients tolerated sun-treatment relatively ill, and on the whole one rather formed the impression that less benefit accrued than in the more normal type of summer."

SPECIAL ARTICLES

BRITISH MEDICAL ASSOCIATION
MEETING IN BOURNEMOUTH

BOURNEMOUTH, according to its medical officer of health, Dr. H. Gordon Smith, is a place of peace [1]; for the young and active desiring stimulation and excitement, he adds, the district is not suitable. We do not dispute his dictum that "at certain times of the year it has a soothing effect," but last week, at any rate, it provided enough stimulation and excitement not only to satisfy the young but to rejuvenate the elders. The first two days of the Representative Meeting furnished ample controversial matter to enliven dinner tables over the week-end but, in fact, a sunny atmosphere prevailed on Sunday, which for the most part was spent out of doors in cars or boats, some private parties were arranged, the facilities offered by the Corporation of Poole at a new bathing centre at Branksome Chine being much appreciated. A large contingent accepted the same Corporation's invitation to lunch and a tour round the harbour on motor-boats. In the evening the famous municipal orchestra of Bournemouth, under Sir Dan Godfrey, gave a Wagner concert. During the first days of the following week the representatives, still hard at work, were gradually joined by visitors from "those two long, dull, parallel streets where, it is commonly believed, the waters of healing are laid on at the main." At the president's reception on Tuesday the guests filled the ballroom of the Pavilion, and also the huge concert hall, where music, a variety programme, and films were provided in turn for those who did not want to dance. Some had been up before nine that morning to attend the opening by the president of the exhibition of surgical instruments and appliances, food, drugs and books set out in the Winter Gardens; a far greater number were roused very early on Wednesday by the fear that they would be too far back in the queue to acquire tickets for the dinner and dance to be held on Friday at Southampton, on board *R.M.S. Aquitania*. The mornings of this and the two following days were taken up by the sectional meetings held at the Municipal College, in which the available accommodation had been nicely adjusted to the expected distribution of members. For the most part, estimates of attendance had been fairly accurate; on the first day only the debates on ante-natal care and on the use of narcotics in the treatment of nervous and mental patients (see p. 272) were held in somewhat over-crowded rooms, while larger ones appeared to be less well filled. The pathological museum, in the spacious basement, contained some interesting material, notably a "clinical picture gallery," mostly dermatological, exhibited by Dr. Watson Smith; the specimens and photographs of pancreatic and renal changes in mental patients lent by the Royal Bethlem Hospital; a series of malignant tumours experimentally produced by methylcholanthrene at the Research Institute of the Cancer Hospital (Free); and the exhibit of parasites, mostly tape worms, and capsules and cysts recovered from human muscle and brain, lent by the Royal Army Medical College, Millbank. Most of the sections concluded their discussions each morning in good time for lunch, and the afternoons were spent at garden parties in different parts of Hampshire and Dorset, in tours by land or by sea, or in recumbent posture on bed or beach in preparation for renewed activity at civic reception, Association dinner, or popular lecture in the evenings. The most flattering tribute to the efficiency of the secretariat of the Association, which is ultimately responsible for the organisation of these annual meetings, was the general acceptance of the good things offered to the mind and the body without comment, as part of the traditional hospitality of the British Medical Association.

[1] The Book of Bournemouth. A series of 23 essays, richly illustrated, edited by Dr. S. Watson Smith. Bournemouth: Pardy and Sons. 1934. Pp. 212.

PROCEEDINGS OF THE REPRESENTATIVE BODY

(*Concluded from page 262*)

The Staffing of Welfare Centres

THE provision of any pegs in the wall by which whole-time medical officers might "climb into the orchard of the general practitioner and steal his diminishing stock of fruit" was deprecated by Dr. B. H. PAIN (Tunbridge Wells) in connexion with the qualifications to be demanded of officers of welfare centres. Prof. R. M. PICKEN, as chairman of the public health committee had brought forward the motion that "it is desirable" that such officers "should have had experience in general practice." Manchester, in the person of Dr. A. Gregory, wished to strengthen this pronouncement by substituting the word "essential" for "desirable" and by specifying two years as the minimum period of such experience; while Newcastle wished to extend the period to three years. Dr. PAINE feared that insistence on this proviso would strengthen the influence of the full-time medical officer, who would be able to say: "I've been in general practice, and *I know*." Sir HENRY BRACKENBURY emphasised the danger of adopting a policy in conflict with the agreement embodied in the Askwith memorandum on salaries of whole-time officers in public health services. Under this memorandum a period of three years' professional experience "in the practice of his profession" was required of a candidate, not more than one of these years being spent in public health work as a temporary officer. Sir Henry held that it would be unwise to alter this arrangement while it was acceptable to those concerned as prospective employers and employees. Dr. E. H. T. NASH supported this view, and Prof. PICKEN pointed out that while a medical officer of a welfare centre should have some knowledge of conditions in the homes of the people, which could well be gained in general practice, insistence in a prolonged experience would so extend the period of apprenticeship for public health work as to discourage men from attempting to enter a branch of medicine which held out no glittering prizes, even to its most successful votaries.

It was agreed to adopt the motion, leaving the time of experience in general practice unspecified.

The Use of Anæsthetics and Analgesics by Midwives

Prof. RALPH PICKEN drew attention to the action of the Council in informing the Ministry of Health and the Central Midwives Board that "it views with apprehension the proposed extension of the freedom of the midwife to administer drugs on her own responsibility, believing it to be dangerous and contrary to the public interest." Sir EWEN MACLEAN supported this action, on the grounds that the

indiscriminate use of drugs by midwives would have serious results to the patient. It would lead not only to a rise in the forceps rate, but to difficulty in maintaining asepsis. A committee of the College of Obstetricians and Gynæcologists had been appointed to look into the question of the use of drugs by midwives; at the present time, influential persons were pressing for a relaxation of the rules in what Sir Ewen deemed an unwise fashion. Sir HENRY BRACKENBURY said that the medical profession were not less anxious than the lay public that relief of pain in childbirth might be available for the poor as well as for the rich woman. Their opposition to the use of analgesic drugs by midwives on their own responsibility arose not from a jealous regard for their own emoluments, but from concern for the welfare of the patient. No administration of chloroform or ether could be made quite foolproof, and a full medical training should be required from those to be entrusted with their use. Possibly a new method of giving nitrous oxide, now under trial, might be made foolproof, under district as well as under hospital conditions; if the anæsthetic could be administered by the patient herself rather than by the midwife, the problem might be solved.

The section of the supplementary report on public health, in which the attitude of the council on this matter was made clear, was adopted.

The Law relating to Abortion

The question whether the council should itself initiate a general inquiry into the law relating to abortion or should merely express willingness to contribute expert medical assistance or evidence to any committee set up by the Government on this subject was eventually settled by the decision to set up a committee with a limited reference "to consider and report on the medical aspects of abortion."

Dr. J. W. BONE, as chairman of the public health committee, pointed out that the subject falls under two main heads: (1) therapeutic abortion, and (2) abortion used as a normal method of decreasing the number of births. With regard to (1) it had been said that some practitioners are unwilling to induce abortion on therapeutic grounds, because they are insufficiently protected by the existing law; the council of the Association did not believe either that practitioners failed in their duty in this respect or that protection was insufficient. With regard to (2), abortion was legalised in certain European countries, and in Soviet Russia it had been stated that 11,000 abortions had been performed in a year with no deaths and few cases of septic infection. It was the information that the mortality and morbidity associated with the operation were so much reduced when it was legalised that had attracted the attention of certain medical men to the legal position. The council took the view that this was a broad public issue rather than a purely medical one, and had thus put forward a restricted proposal for the appointment of a committee on the medical aspects of abortion. In the course of the discussion, it was said that democratic governments tend to shirk issues of this kind, and that a corporate body of 100 years standing could, and should, give guidance and help to form and educate public opinion. Dr. PARRY, of Brighton, was not satisfied of the wisdom of setting up a committee unless the Government established an inquiry on broad lines, since the *medical* indications for abortion were already well known; Dr. HAWTHORNE agreed that these were clearly set out in text-books and appeared to be concerned lest the committee should venture too far afield in its deliberations and report. Dr. E. R. C. WALKER held that the profession was concerned with the whole personality of the patient, not only with her physical condition; and Dr. J. S. MANSON, for Warrington, obtained an assurance on behalf of the council that the forensic and preventive aspects of the subject would not be ignored. The suggestion that the matter might safely be left to obstetricians and gynæcologists was opposed by two prominent members of this specialty, Prof. JAMES YOUNG and Sir EWEN MACLEAN. The former held that difficulties arose in practice because the law was uncompromising in regard to penalties and yet left the circumstances under which action was permissible very vague. Sir Ewen Maclean regarded it as an important duty to ascertain whether this grave social menace was as prevalent in this country as had been suggested. He found it difficult to believe that the rough-and-ready methods of inducing abortion, said to be practised on a large scale in Russia, were really so free from mortality and morbidity as had been claimed.—Dr. E. W. G. MASTERMAN held that a pronouncement, following investigation by the Association, was highly desirable; an appalling number of cases of abortions was received in municipal hospitals.

In spite of gloomy forebodings by Dr. HAWTHORNE the meeting eventually decided to set up a committee with the limited reference indicated above.

Secret Remedies

The publication many years ago of the book entitled "Secret Remedies" was described as one of the best pieces of work done by the Association, iin a motion by Kensington pressing for its periodical re-issue. The proprietary remedies on the market had altered greatly since 1914, and there was a general demand for information as to their content. Sir ROBERT BOLAM and Mr. SOUTTAR pointed out the difficulties of the proposed task, which had to be approached with great caution, and the motion was accepted in a modified form.

The Direct Representatives

Speaking for Marylebone to a motion—

That the council be requested to consider the arrangements under which the selection of candidates within the British Medical Association for nomination to the General Medical Council is at present conducted, with a view to removing if possible the objections which have been advanced against the existing practice—

Dr. B. SPURGIN outlined the present procedure. A meeting of the profession was summoned in every divisional area to select by vote the candidate most approved; then in the town where the annual meeting was held a meeting of the representatives of the English and Welsh constituencies was summoned to make a final choice from among those nominated.

The principle underlying this procedure was that the Association would support the candidate favoured by the majority of the local professional meetings, but in this case no central meeting need be held, since the results of voting in each area could be sent by post to headquarters. If no such meeting had been held in any area, then the representative of the area had no right to vote. On the present plan the vote at the central meeting was taken by a ballot and there was thus no guarantee that the representatives did actually vote according to the opinion expressed by their divisions. One of the complaints, especially in the provinces, was that under the existing scheme no candidate had any chance unless he happened to be a prominent member of the B.M.A.; and again, that a candidate who wished to stand and had the support of his division was excluded from testing the feeling of the whole constituency.

It was sometimes said that the central meeting was not a meeting of representatives or of members of the Association, but of the whole profession, but a meeting open to the whole profession could hardly be called into existence at the particular town in which the B.M.A. annual meeting is held.

Dr. HAWTHORNE, supporting the amendment, said that no one doubted that under the existing scheme the best possible representation had been secured, or that the active interest taken by the Association in the election had given it a vitality previously lacking. It was sought only to regularise procedure by some means. On this understanding the motion was passed.

Miscellaneous Business

Many of the sections of the Council's report were adopted either with little comment or after discussion which led to no material results in amendment of motions, though often points of general interest emerged. For example, a motion by Dr. J. COHEN (for Kensington) that though separate sessions for contributing patients in V.D. clinics were open to objection, the principle of payment for services rendered should be encouraged, was lost, the meeting accepting the view expressed by Dr. NASH and Dr. WILLOUGHBY that to exact a fee from any patient would harm the work of the clinic.—The announcement by Dr. LE FLEMING, as chairman of the relevant committee, that the Report on Nutrition had been an outstanding success, more than 12,000 copies having been sold, was received with enthusiasm. For the first time, he said, the calorie had been translated (1) into terms of food, and (2) into terms of money, and this could be reckoned a great achievement.—Mr. BISHOP HARMAN's favourable report on the progress of the National Ophthalmic Treatment Board also caused general satisfaction. The memorandum of evidence tendered to the Departmental Committee on Health Services in Scotland by the Scottish committee of the Association was presented by Dr. J. B. MILLER. The criticism that it should have been submitted to the divisions for approval was fully met by an explanation of the time factor, and no other major criticism of its provisions was offered. Dr. WALKER's description of the document as a better exposition of B.M.A. policy than any hitherto issued was received with good-humoured applause.

THE ANNUAL DINNER

Dr. S. WATSON SMITH, the President, took the chair at the annual Dinner held on Thursday evening. Sir CRISP ENGLISH proposed the health of the county borough of Bournemouth, expressing the appreciation of the Association of the hospitality it had received. There must, he said, be thousands and thousands of people who would gladly join in this toast in gratitude for the return of health. The Association wished him particularly to express its recognition of the coöperation that existed in Bournemouth between the authorities and the medical profession. He concluded with a tribute to Sir Dan Godfrey, the director of the municipal orchestra.—Alderman J. R. EDGECOMBE, mayor of Bournemouth, responded, attributing a great part of the popularity of the town to the recommendations of doctors in years gone by. The town had changed its character, from being a health resort only to being also a pleasure resort. It put the finishing touches to the healing work the medical man had started.

The EARL OF MALMESBURY proposed the health of the Association, which he described as one of the most important bodies in civilisation. Laymen recognised to the full the magnificent work that the Association was doing.—Sir HENRY BRACKENBURY responded, observing that the reply to this toast was the last duty of a retiring chairman of council and offered congratulations to his successor, Dr. Kaye le Fleming. He expressed gratitude to the towns of Bournemouth, Poole, and Christchurch for their abundant generosity and kindness. There had been of recent years two special features of the Association's work: the number and wide extent of the overseas representation and the activities of the Association as a great social service. The Association was not only a great medical but also a great imperial concern. The interests of the profession were one and the same as the interests of the public. The health of the people had become increasingly a concern of the State and of the local authorities, but there were many overlapping interests and neglected opportunities. The Association had always been in the forefront of the communal concern for health. It was not unreasonable to expect the authorities to consult and use the medical profession. The services of the State, though preventive in aim, had become largely clinical in their expression. There were still some local authorities which had not been wise enough to accept the aid proffered by the Association which, he assured them, was proffered in no wish to gain more work and emoluments for its members, but in order that it might play its part in social service.

Dr. F. W. BRODERICK proposed the health of the Guests, to which Sir HENRY PAGE-CROFT, M.P., and Dr. D. M. EMBLETON (Melbourne) responded.

Dr. E. K. LE FLEMING proposed the health of the Chairman. He said that the local division, recently in a great difficulty, had followed scriptural advice to look to the hills for help, and had looked to Scotland, finding among themselves an exile from that land, bearing his lot with patience and fortitude. The position which the president-elect had been unanimously chosen to fill was no easy one; Dr. Watson Smith had already undertaken many tasks in connection with the annual meetings, including the publication of the "Book of Bournemouth." For the first time in its history, the Association proposed to carry the flag right round the world during the President's year of office. The hospital question, in which he took keen interest, was going to become of universal importance during the next few years.—The PRESIDENT, in reply, declared that he had not come South in search of gold, but of something far more valuable—viz., health. He had deliberately chosen Bournemouth to live in and later to work in.

ANNUAL GENERAL MEETING

THE new president, Dr. S. Watson Smith, was formally inducted to the chair on July 24th at the 102nd annual general meeting of the Association. Prof. T. G. Moorhead, in investing him with his badge of office, referred to the sympathy felt for Mr. F. W. Ramsay, lately president-elect, who through ill-health found himself unable to proceed to the chair. At a moment critical for the Bournemouth meeting, he said, Dr. Watson Smith had stepped forward and guided the organisation with evident success. The incoming president spoke of the gifts of intellect, manner, and heart that his predecessor had brought to his year of office and, in reply to a vote of thanks moved by Sir Henry Brackenbury—"not merely as an expression of thanks to the president, but as a tribute to the man"—Dr. Moorhead referred to the help given him by his wife and the consideration shown him by the officers of the Association. He expressed his hope that, during the coming year, a much larger and more united medical organisation would be formed in Ireland than any now existing, and that it would be an integral part of the British Medical Association.

SECTION OF MEDICINE

Prof. W. LANGDON BROWN (Cambridge) presided over this section, and Dr. A. F. HURST (Windsor) opened a discussion upon

The Clinical Importance of Achlorhydria

Dr. Hurst said it was most important to determine how achlorhydria could be prevented or, failing this, how to cure the underlying condition instead of merely treating it symptomatically by means of artificial gastric juice. Referring to some fundamental facts concerning the physiology of the stomach, he said that protein digestion was carried on equally well in the intestine in the absence of pepsin and hydrochloric acid. The antiseptic action of the gastric juice was more important, since it protected against infection with bacteria present in food and drink. Dysentery and similar infections occurred much more commonly in people with achlorhydria or hypochlorhydria, and he was sure that the Services would save much invaliding if men with achlorhydria were not sent to the tropics. The diminished alkalinity of the intestinal contents following achlorhydria favoured extremely rapid ascending invasion with *B. coli* which are found in large numbers in the duodenum. Infection with streptococci from above and *B. coli* from below, together with mechanical irritation of the mucous membranes by insufficiently-softened and broken-up food might lead to chronic enteritis which was, therefore, frequently associated with achlorhydria. Reference was also made to the presence of hæmopoietin and neuropoietin in the gastric secretions. Most people with hyperchlorhydria suffered sooner or later from gastric or duodenal ulcer, while those with hypochlorhydria developed achlorhydria. In both cases this was the result of chronic gastritis following irritation of the mucous membranes, either mechanical irritation (bolting food, or taking excess of coarse vegetable material), or chemical irritation (alcohol, especially on an empty stomach or mixed with other irritants in cocktails; strong tea or coffee; excess of condiments; drugs such as bromides, mercury, digitalis; or tobacco).

Chronic gastritis would also follow on excretion of toxins through gastric mucous membranes after acute infections. These causes were so universal that few with the hyposthenic or hypersthenic gastric constitution escaped. Achlorhydria was often familial but it was still uncertain whether it was ever congenital. The mucous membrane attempted to protect itself by the secretion of mucus which neutralised some of the acid but also blocked the mouths of the acid-secreting tubules. The inflammation of the mucosa depressed the functional activity of its glands—the more delicate oxyntic cells suffering first. Thus, in individuals with a hyposthenic gastric constitution, achlorhydria resulted, so that removal of the mucus by lavage would restore free acid in the gastric juice. Restoration of hydrochloric acid secretion even after the injection of histamine was impossible in some cases where there was severe chronic gastritis with achlorhydria associated with secondary bacterial invasion and progressive atrophy of glands leading to achylia. In these severe cases of true achylia, the production of hæmopoietin and neuropoietin was diminished sufficiently to give rise to Addison's anæmia and subacute combined degeneration. Dr. Hurst had seen three cases in which hydrochloric acid had returned following the treatment of the gastritis. After gastro-jejunostomy for duodenal ulcer, the acidity was partially reduced by alkaline duodenal secretions. When achlorhydria was present after such operation it was generally a sign that the operation had been needlessly performed on a patient with achlorhydria, or on one with chronic gastric ulcer in which hyperchlorhydria had been replaced by hypochlorhydria as a result of chronic gastritis. Although achlorhydria made it impossible for anastamotic ulcers to form, there might be chronic diarrhœa, cholecystitis, or simple achlorhydric anæmia, while a deficiency of hæmopoietin would allow development of Addison's anæmia. The complete achylia following removal of the entire stomach might lead to the onset of this anæmia owing to the loss of the glands producing hæmopoietin. Partial gastrectomy, however, might also be followed by simple achlorhydric anæmia.

Achlorhydria was present in some 65 per cent. of patients with cancer of the stomach. The achlorhydria was caused by chronic gastritis, and the growth was a result of malignant degeneration of the chronically inflamed mucous membrane. Carcinoma of the stomach might be seen associated with simple anæmia, Addison's anæmia, and subacute combined degeneration, which also were associated with chronic achlorhydric gastritis. Dr. Hurst had seen five such cases and John Wilkinson had recorded 22 others. He believed that with the prevention of recurrences of pernicious anæmia by modern treatment an increasing number of these cases would develop cancer. Cancer never developed in a healthy stomach, but in 25 per cent. of cases followed simple ulcer, and in 75 per cent. of cases followed chronically inflamed mucous membranes. It should be possible to prevent the development of cancer of the stomach by preventing chronic gastric ulcer and chronic gastritis, or recognising and overcoming them at an early stage. Gastritis should always be treated, and treatment would bring about the return of secretion of acid in 80 per cent. of these cases. Infection of teeth, tonsils and sinuses must be overcome; milky feeds were advisable at the beginning of treatment with omission of alcohol and tobacco, followed later by an unirritating diet. Stomach lavage should be continued daily until no more mucus came away; thereafter less frequently. Hydrochloric acid and pepsin should be given to those in whom achlorhydria persisted. The disappearance of gastric cancer would depend upon the prevention of gastritis.

DISCUSSION

Dr. K. SIMPSON (London) considered certain fallacies associated with gastric histology, holding that it was impossible to estimate secretory function from a histological examination of post-mortem material. The character of the mucus secreted was important, only certain forms being capable of neutralising hydrochloric acid. Gastritis of the recoverable type was of a more superficial character; when it extended to the deeper parts of the mucosa recovery was not to be expected.

Dr. JOHN F. WILKINSON (Manchester) referred to the effect of histamine in stimulating the production of free acid in the gastric juice in cases of apparent achlorhydria; for that reason its use was often of value for the detection of true achlorhydria, the pure gastric secretion removed at ten-minute intervals being examined before and after the injection of histamine. He did not agree with the suggestion that histamine stimulated only free acid secretion and had little influence on the enzymes secretion, for the output of the latter was also increased along with the acid. The gastric enzymes played a greater

part than did the acid in the prevention of certain diseases, particularly hæmopoietin (the anti-anæmic enzyme) and pepsin. True achlorhydria was most commonly associated with pernicious anæmia and gastric carcinoma, but it was also frequently found in many other conditions. There was considerable evidence that it was not only familial, but might be unassociated with signs or symptoms.

Achlorhydria was frequently associated with symptoms referable to the gastro-intestinal tract; thus flatulence might be present for years, vomiting was uncommon, and nausea and heartburn might be troublesome. Chronic diarrhœa might be associated with flatulent dyspepsia or even epigastric pain. In a series of 135 cases suffering from chronic diarrhœa 43 (32 per cent.) had achlorhydria and 41 (30 per cent.) hypoacidity, making a total of 62 per cent. with secretory dysfunction. The cause of the diarrhœa in these cases was uncertain, but the immediate improvement following the administration of hydrochloric acid was very striking. Soreness of the tongue, often with ulceration, was commonly associated with anacidity, but a few cases might show hyperacidity. In a group of 47 cases 12 (25·5 per cent.) had achlorhydria and 17 (36·2 per cent.) hypoacidity—showing gastric dysfunction in 62 per cent. of the cases. The importance of treating these cases of achlorhydria must not be neglected, said Dr. Wilkinson, since he had seen gastric carcinoma or pernicious anæmia occasionally develop in them; an examination of the case histories in pernicious anæmia often disclosed that the first symptom had been sore tongue or diarrhœa. In pernicious anæmia, achylia was practically essential for correct diagnosis, and it had been almost invariably present in his series of 554 cases. Occasionally cases resembling pernicious anæmia had been seen with free acid in the gastric juice. Many of these were "hæmolytic anæmias" of pregnancy (with good prognosis). Others presented difficulties, and were undoubtedly hæmolytic anæmias quite distinct from pernicious anæmia; in these repeated blood transfusions formed the best measure but was only of a temporary value, for the prognosis was poor. The extreme rarity of pernicious anæmia (or subacute combined degeneration of the cord without anæmia) in the presence of free hydrochloric acid in the gastric juice called into question the correctness of the diagnosis in these cases. Recent work had shown that hæmopoietin was a more important constituent of gastric juice than free acid or pepsin. Hæmopoietin was present in normal gastric juice and normal human and animal mucosa; it was absent from the gastric juice and mucous membrane in pernicious anæmia and subacute combined cord degeneration. Interaction of hæmopoietin and the extrinsic food factor furnished the liver anti-anæmic principle which was present in normal liver but absent from the liver of relapsing pernicious anæmia. Achylia always preceded the onset of pernicious anæmia, and the latter followed the complete destruction of the gastric mucosa, either by chemical agents, gastrectomy, or gastroenterostomy.

He had records of 160 families containing two or more members with pernicious anæmia, nearly 70 families showing pernicious anæmia and achlorhydria in different members, and a further 30 families showing familial achlorhydria without anæmia. He discussed the association of achlorhydria and microcytic anæmia, referring to the close relationship between microcytic and macrocytic anæmias with achlorhydria and the conversion of one into the other. These changes were particularly liable to take place after gastric operation, for the hæmopoietic system being unstable reacted excessively to anti-anæmic treatment. He indicated the very marked familial tendency in microcytic anæmia, and also drew attention to the occurrence of pernicious anæmia when chronic intestinal obstruction was associated with achlorhydria. In 554 cases of pernicious anæmia two had developed gastric cancer and two carcinomata of the colon.

Dr. C. C. UNGLEY (Newcastle-on-Tyne) said that yeast owed its effect in pernicious anæmia to the extrinsic factor (Castle). Some cases of histamine-refactory achlorhydria with pernicious anæmia retained to a variable extent their ability to secrete intrinsic factor; thus a hæmopoietic response to yeast was an indication of this functional ability on the part of the stomach. The evidence pointing to a separate neuropoietic substance was based upon (i) the lack of parallelism in incidence, course, and response to treatment between the anæmia and subacute combined cord degeneration; (ii) the rarity of this neurological condition in tropical pernicious anæmia where factors other than gastric defect played a large part; such cases often had free acid which was almost never found in true subacute combined degeneration; (iii) the high incidence of nerve involvement in pernicious anæmia associated with extensive gastric lesions; in nine cases of polyposis there were six with pernicious anæmia, four having neurological symptoms; (iv) the dietaries of cases of pernicious anæmia with and without subacute combined degeneration failed to show extrinsic differences in the two groups, and, judged by the yeast response, intrinsic differences (hæmopoietin, chlorides, pepsin) in the gastric secretory functions.

Some cases of nutritional (idiopathic) hypochromic anæmia with achlorhydria showed moderate pepsin values, and about half could secrete neutral red in the gastric juice; in many the ability to secrete pepsin, chlorides, and neutral red resembled that in pernicious anæmia. The lack of the substance produced by the action of gastric juice on meat, spinach, and yeast might cause defective absorption of food iron, and symptoms such as sore tongue, dysphagia, koilonychia, easy bruising.

Dr. J. H. ANDERSON (Ruthin) referred to the association of achlorhydria with large numbers of diseases, and said that it was important not to think of this condition only in terms of cancer of the stomach or pernicious anæmia. He had seen 20 cases of complete achlorhydria in a consecutive series of 225 fractional test-meals. The achlorhydria occurred equally in both sexes, the majority in early middle life. More than half the patients were abstainers from alcohol and tobacco, or used these drugs sparingly. The most prominent symptom could not be correlated directly with the stomach, although 17 had some digestive disability of which flatulence, lack of appetite, and nausea supplied more than half. The illnesses had varied in duration from 6 months to 36 years, and in half the cases childhood and adolescence had not been healthy. Chronic infections were frequent, but in only two did an acute infection usher in the present bad health. The diagnosis on which treatment was based did not in many cases bear directly on the stomach. Glossitis was rare, the blood picture was often normal, or showed a simple secondary anæmia, and except in a few cases the rate of emptying of the stomach was unaltered. Constipation was a usual feature, and two of the three cases of diarrhœa could be explained by other than gastric causes.

He considered that gastritis could be recognised by careful radiography with the aid of good profile and strial pictures. It was present in 11 out of 14 cases. Further research was necessary into the incidence of achlorhydria in a large number of healthy young people with adequate controls with a follow-up of their medical histories for at least a generation.

Dr. GILLESPIE referred to the antiseptic action of the stomach secretions, and said that in China he had found it particularly useful to give hydrochloric acid as a prophylactic during epidemics of cholera.

Dr. G. W. GOODHART (London) said it was important to remember that the stomach possessed a muscular wall in addition to a mucous membrane, and that the character of the stomach contents would vary with the rate and quality of the gastric secretion, the addition of food, the rate of emptying, and the degree of regurgitation. He did not think that Dr. Hurst was consistent when he considered that mucus was a sign of gastritis, but did not indicate an inflammatory condition of the colon; gastric lavage was really a method of resting the stomach, and thus enabled it to regain its normal functions. In the majority of cases in which gastro-enterostomy was carried out a previously good secretion of hydrochloric acid was followed by achlorhydria; when the acid returned at a later date in some of these cases the symptoms also returned. Dr. Goodhart quite agreed that there were two forms of mucus, but did not think that they could be distinguished at the present time. It appeared possible that these were secreted in different parts of the stomach. No amount of mucus would neutralise the acid in a freely-secreting hyperacidic stomach. He could not believe that mucus prevented acid secretion by blocking the ducts, otherwise what would happen to the strong acid thus held back? He thought the best way of investigating gastric secretory function was to give the ordinary gruel test-meal followed at the end of one hour by histamine, so as to get some idea of the motor functions of the stomach. He also commented upon the difficulty of reporting cases of anæmia adequately in the medical journals.

Dr. ALISON MACBETH (London) asked whether there was any evidence for the existence of neuropoietin in addition to hæmopoietin, and considered that it might only be a difference of individual susceptibility to one and the same deficiency. She also wished to know whether there was any evidence as to the nature of the substance in yeast described by Dr. Ungley.

Dr. DOROTHY HARE (London) asked whether any value could be attached to estimations of the volume of gastric juice secreted after histamine in differentiating achlorhydria and achylia.

REPLY

Dr. HURST (replying) said that mucus in the stools showed not colitis but a normal response to irritation by hard fæces; on the other hand, a test-meal was not an irritant, therefore mucus in the stomach meant gastritis and was pathological. He had some difficulty in explaining how the mucus caused a diminution of acid secretion, but it must act chemically or mechanically—the acid was produced under very low pressure so that blockage of the tubules would readily prevent its production. He could not believe that regurgitation had anything to do with achlorhydria. Flatulence was a genuine symptom of achlorhydria, the latter being the commonest cause of chronic diarrhœa. He agreed with Dr. Wilkinson that diarrhœa and sore tongue were extremely important symptoms requiring serious attention.

Dr. UNGLEY did not think that the yeast principle was similar to the liver principle since it differed slightly in its clinical behaviour.

Dr. WILKINSON agreed that the fractional gruel test-meal was the most useful clinically but histamine was often of great value. It was not possible to differentiate between achlorhydria and achylia from the ten-minute volume of the secretion. Hypoacidity was also familial, and therefore might be a precursor of achlorhydria.

SECTION OF SURGERY

Mr. GREY TURNER (Newcastle-upon-Tyne) presided, when Mr. G. GORDON TAYLOR (London) opened a discussion on

Bad Surgical Risks

Quoting Mr. Basil Rooke's definition of a bad surgical risk as "a type of patient whose prospect of recovery from active surgical interference falls much below the average," he said the focus of the discussion was on the patient rather than on the operation; there was, therefore, no intention of discussing heroic and formidable operative procedures such as excision of the thoracic œsophagus or of large hepatic adenomata, extraction of emboli from the pulmonary artery, or such attainments as that of Pierre Duval in extracting a bullet from the pericardial portion of the inferior vena cava. He was, he said, in agreement with the accepted view that extensive operations were more than usually hazardous when performed on members of the Jewish race. He did not think it was possible for a Jew to recover from an abdomino-perineal resection of the rectum, and he considered it unusual for him to survive gastrectomy for carcinoma of the stomach. Indians he had found to be bad surgical risks; but the Chinese stood operation well, and, contrary to the accepted view, his war experience had led him to regard the Irish as good subjects for operation. A long-lived ancestry must be looked on as a great asset when surgery was contemplated. Certain operations, such as extirpation of the rectum by the combined method, were better borne by women than by men. Women, on the other hand, were more liable to anæmia following gastrectomy than were men. An important point to be borne in mind was the disastrous result that might follow the performance of a radical breast operation during the menstrual period. There was more risk attached to operations performed at the extremes of life than to those performed in the prime of life. It must be allowed, however, that operations in the first three months of life, if carried out by skilled and experienced surgeons, were characterised by a remarkable degree of safety. Rammstedt's operation for pyloric stenosis and herniotomy (when considered essential at this early age) were absolutely safe in competent hands. In emergency operations in the first few days of life, the danger was related rather to the serious nature of the condition calling for operation than to the age of the infant. The prognosis in non-gangrenous intussusception was excellent, despite its occurrence in 50 per cent. of cases between the fifth and ninth months of life. Injury and severe operation were ill-borne by the aged, but he had successfully performed colostomy for cancer of the rectum in a woman of 98 years, and he had resected under light general anæsthesia, a car-

cinoma of the transverse colon in a man of 85, who was alive six years after.

Obesity greatly increased the mechanical difficulties of operation, both on account of the depth of the wound and because of the presence of subperitoneal fat. The likelihood of a deposit of fat around the heart must be kept in mind, and the fact that these patients were more liable to suffer from chest complications and from emboli. He thought it was wise, where there was no special urgency in the case, to spend time deliberately in reducing weight before attempting operation. A few days spent in bed were of value, and might decrease the pain experienced. Excess in alcohol and tobacco increased the risk of surgical procedures. Antecedent and intercurrent diseases were serious handicaps, especially when latent or unsuspected. He had seen pulmonary tuberculosis flare up in patients apparently recovering from perforation of a gastric ulcer. Even very definite cardiovascular degeneration did not preclude the possibility of recovery from major surgery. A low blood-pressure was a more serious handicap than was hypertension. Renal disease was a serious drawback, particularly in genito-urinary surgery. Insulin and glucose therapy had now rendered the risks of operation in diabetes almost negligible. Antecedent infections constituted a definite danger. It was known that erysipelas might recur during the convalescence of a patient who had suffered from it in the past. Recrudescence of tetanus might occur in reopening a wound infected years before; he had seen a most alarming flare up of a streptococcal infection after an operation for diaphragmatic hernia by the transthoracic route, caused by a gunshot wound ten years previously. Operation should not be undertaken in those who had recently suffered from colds, influenza or pneumonia; it was wise to allow months to elapse.

The "psychological undesirables" presented much anxiety. He would advise surgeons to avoid, if possible, operation on patients who needed persuasion and over-persuasion, and to view with alarm the sight of stacks of books at each side of the bed, more particularly if they were French novels. Other danger signals were the reading of the paper upside down, and delaying the theatre in order to put the last few lines to an autobiography. Patients, usually women, who changed their religion the night before an operation usually died. Loquacity often heralded surgical disaster.

Surgical risks were at a minimum in operations on the pelvis, which might almost be said to be the surgeon's playground. The surgery of thyro-toxicosis was at one time one of the most dangerous of fields; the work of physician and biochemist had now rendered it one of the safest. At the Middlesex Hospital the mortality rate for all cases of toxic goitre operated on by all the surgeons was under 1 per cent. Preoperative administration of iodine and repeated investigation of the basal metabolic rate had reduced the surgeon to a mere carpenter in the hands of the physician and biochemist, who seemed to know the exact hour at which operation would be best tolerated. In the field of gastric surgery a great deal of judgment was needed, there was danger of too much being attempted in a patient who would not stand it. Bleeding from a chronic ulcer at once converted a patient into a bad surgical risk, but he was, if anything, a worse medical risk, and after a second hæmorrhage the mortality without operation was about 78 per cent. The operative mortality, after a single hæmorrhage, in his own cases was 19 per cent. All gastric cancers were bad risks; whereas a patient who had had a gastrectomy done for ulcer would always try to live, if it had been done for cancer he would always die if he could. Almost every case required a transfusion of blood. The danger of post-operative thrombosis was increased when there was a high initial blood-platelet count. To minimise the danger of resections of the colon in difficult cases, and in patients who were considered bad risks, the Paul-Mikulicz type of operation should be employed more often. In his hands it carried a mortality of only 1–2 per cent. Drainage of the bowel, preliminary or simultaneous, the use of lateral incisions directly over the growth, and drainage of the abdomen at the site of the anastomosis also made for safety. In cancer of the tongue or mouth radium therapy now provided an alternative to operation.

In conclusion Mr. Gordon Taylor expressed his opinion that the development of the craftsmanship of surgery was not yet finished, and that bad risks of to-day might well become the certainties of to-morrow.

Mr. ERNEST MILES (London) said that with few exceptions the minor operations on the rectum carried no risk. But in operations for piles there was risk when excessive bleeding had led to progressive anæmia; in the patient with cirrhosis of the liver, when "stopping the leak" might lead to post-operative hæmorrhage, and where bleeding from piles was a symptom of high blood-pressure apoplexy might result from stopping it. In operating for fistula it had to be remembered that in 14 per cent. of cases the origin was tuberculous and repair might not occur. The apparently very severe operation of rectosigmoidostomy for complete anal prolapse rather surprisingly showed no mortality and was followed by perfect healing. Cancer of the rectum he regarded as "public enemy No. 1." Since without operation the condition was always fatal in two to four years, operation had to be attempted and the surgeon must put up with the material supplied to him. In the days of inhalation anæsthesia he had been wont to regard the patient over sixty as a poor risk. The fat patient was always a great problem, but the worst risk was the patient who had suffered from prolonged and severe constipation in the presence of a foul and necrotic ulcer, and had a marked degree of toxæmia. At least a week's preparation was then essential, consisting of daily enemeta, and repeated wash-outs. Where there was definite obstruction at the rectosigmoidal junction it was wise to do a cæcostomy (his own choice) or a colostomy in continuity, without division of the bowel, as a prelininary procedure.

Mr. ERNEST FINCH (Sheffield) said that to the question what was meant by "poor resistance" there was at present no satisfactory answer; he felt confident it was only a matter of time until physiology supplied one. One of the most important factors, he thought, was fluid circulation in the body. As pointing to danger in delay, he cited visible peristalsis in the case of pyloric stenosis, and dribbling urine in enlargement of the prostate. He had been particularly struck with the high mortality attaching to operations for empyema. As regards patients with cardiac lesions, it should be realised that, whatever else surgery might be responsible for, it did not cause decompensation. There was as yet no real test of liver efficiency, and we still met with unexpected fourth and fifth day deaths from failure of liver function. He looked on prostatic cases as amongst the worst risks; in Sheffield practically all the cases reached the hospital in the stage of acute retention. The catheter he regarded as the curse of prostatectomy. He pointed out that although hæmorrhage from a

gastric ulcer was an indication for operation, this was not the same thing as saying that hæmatemesis was an indication for operation. He considered blood transfusion more valuable as a pre-operative than as a post-operative measure. He strongly advocated the Paul-Mikulicz type of operation in cancer of the colon in certain difficult cases; it was better, in the words of Frank Jeans, to have "a living problem than a dead certainty."

Mr. MAX DANZIS (Newark, N.J.), from his experience in a hospital in which 60 per cent. of the patients were Jews, was convinced that no greater risks were encountered in operating on Jews than on the rest of the population.

Mr. MCADAM ECCLES (London) thought it was probably the Continental Jew who constituted such a particularly bad risk. The English Jew, possibly because he was not under fear, was a better subject for operation. A preceding bout of insomnia in a patient normally accustomed to long hours of sleep formed a particularly unfavourable preparation for surgical procedures. He had also noticed that bad sailors, and bad travellers in general, took anæsthetics badly.

Dr. BERGSTROM (Sweden) said he considered one of the most important points was not to be in a hurry to operate. The heart should be treated if necessary, and time taken to X ray the lungs and test the kidney function. In prostatectomy he employed catheter drainage, was careful to ensure adequate hæmostasis and used a very large tube. In gall-bladder cases which had to be opened when they were acutely ill he employed regional and intercostal anæsthesia only.

Mr. JAMES RUSSELL (Glasgow) said he regarded as dangerous adrenaline in conjunction with local anæsthetics. It was wise to pay attention to the judgment of the ward sister in deciding when a patient was ready for operation.

Mr. E. W. G. MASTERMAN (London), from experience in Palestine, said there was no doubt that the Eastern Jew was a much worse subject for operation than was the Arab. He had operated on a girl with diabetes, under treatment and free from glycosuria. The appendix had been removed under cocaine anæsthesia, with the result that after 48 hours she had gone into a fatal coma.

Mr. R. L. SPITTEL (Colombo) said that from his experience of Indians the normal individual in his normal environment, if well-fed, constituted no worse risk for operation than members of other races.

Mr. R. B. BLAIR (Hull) thought the nervous patient was often a most satisfactory person on whom to operate, once his confidence had been obtained.

Dr. W. N. LEAK (Winsford) had come to the conclusion that the condition of surgical shock was an avitaminatosis due to failure in storage of vitamin A in the liver. He had obtained encouraging results by injecting this vitamin in post-operative cases.

Mr. BASIL ROOK (Bournemouth) said he was impressed with the psychological factor. The Norfolk labourer did not seem to suffer from shock. The person of high mentality was a worse risk than the person of low mentality. He had found the professional man, even when in the prime of life, a bad patient, because he worried about his work. The fat cheerful type of patient reacted favourably to operation.

Mr. GORDON TAYLOR, in reply, agreed with Mr. Miles about the value of preliminary cæcostomy. One of the most valuable aids to the surgeon was the coöperation of the anæsthetist.

SECTION OF NEUROLOGY, PSYCHOLOGICAL MEDICINE, AND MENTAL DISEASES

Dr. LIONEL A. WEATHERLY (Bournemouth) presided over this section and asked speakers to confine themselves to the use of hypnotics, for their abuse did not imply any inherent fault in the drugs themselves.

A discussion was then opened by Lord HORDER on the

Use of Narcotics in the Treatment of Nervous and Mental Patients

Lord Horder said that it was convenient to make a distinction between pain killers and sleep producers. The two groups overlapped; all narcotics were also hypnotics, but all hypnotics were not necessarily narcotics. If the cause of sleeplessness was pain then even mild doses of narcotics, by allaying pain, might induce sleep indirectly rather than directly. The key to the successful treatment of insomnia, he said, was to find its cause or causes. Psychical causes had been called "primary"; these included anxiety (i.e., mental pain) in various forms, especially anxiety about not sleeping; and also the emotions of joy, sorrow, fear, love, anger, remorse. These required psychological treatment. The attitude of the patient towards sleep was extremely important, especially the fear lest want of sleep should cause permanent harm. Most people slept more than was necessary, and this should be made clear in reassuring the patient. Over-stimulation of the mind might be a cause of insomnia. It was necessary to inquire as to the manner in which the patient spent the latter part of the day. Over-fatigue of the body generally might be another factor. Dyspepsia in various forms, fever, usually associated with toxæmia, circulatory and respiratory lesions, the psychoses, excited and depressive states, all these, either separately or in combination might be the causes of sleeplessness. In regard to remedies, it was advisable first of all to consider all possible general measures. The next line of approach was by way of drugs; alkalis, salicylates and aspirin, the bromides, valerian, pyramidon. The place of alcohol as a hypnotic must also be considered, and its obvious risks taken into account. A night-cap at bed time was often helpful. Opium and its derivatives were indicated in certain cases where sleeplessness was due to severe pain. Hyoscine and the older hypnotics had long been used for the relief of insomnia and to allay mental excitement. The newer group of hypnotics—the barbiturates—marked a great advance because of exactness of dosage and constancy of effect. The ideal hypnotic, unfortunately, did not exist. It was not the drug but the development of a drug-habit that called for condemnation. This was equally applicable to tobacco and to alcohol, to tea and to cocaine. Sedative drugs formed a means of escape from life and its troubles. Sleep itself was a form of escape from life. Lord Horder urged the necessity of adopting a scheme of dosage for each patient. Sedatives were not necessarily best taken at bed-time. He was convinced that the ill effects attributed to hypnotics were considerably exaggerated.

DISCUSSION

Dr. R. CUNYNGHAM BROWN stated that he had helped in working out the results of an inquiry, which the Board of Control for some years sent out to the medical officers in charge of mental hospitals as to the amount and kind of sedatives used and their

frequency of administration. The Board reported that there was a great variation in the kind and amount of sedatives used, and that it seemed clear that the order and tranquillity of mental hospitals had little relation to the extent to which sedatives were used. A further report was still in preparation. His own views on the employment of sedative drugs was that they had a valuable place in treating mental patients to relieve feelings of anxiety and distress; to alleviate excitement; to reduce violence; and, comparatively infrequently, as pure hypnotics. Insomnia per se seldom arose in mental hospitals or among psycho-neurotics.

Dr. JAMES COLLIER (London) confined his remarks to the actual effect on the nervous system of the barbiturates, which he describes as most valuable remedies. They tended to concentrate in the cerebro-spinal fluid and thus acted specially upon the nervous system. Removal of cerebro-spinal fluid most effectively relieved cases of barbiturate poisoning. Their earliest and chief effect was upon oculomotor mechanisms in the mid-brain and upon the region of the third ventricle, including the sleep region, and the temperature regulating mechanism, and upon the red nucleus which was really a part of the cerebellum. In some cases poisoning occurred without over dosage, probably due to abnormal retention; symptoms might suggest tumour of the quadrigeminal region. He considered the barbiturates safe and valuable drugs and had not found any ill results from controlled medicinal administration. They might, however, be very dangerous where vitality was low and oxidation processes slow, and would therefore be absolutely contra-indicated in pneumonia.

Dr. HAROLD SIMMONS (Bournemouth) stated that from the point of view of general practice, the relief of immediate symptoms was a preliminary necessity. Hypnotics were therefore often necessary as a first-aid measure. The need for hypnotics ranged from immediate relief of asthma by ephedrine or aspirin to the relief of mental fatigue, mental distress and insomnia which formed a large part of general practice; they were needed for the treatment of physical pain and for the production of basal narcosis. For nerve-racked patients he used bromide combined with some tasteless form of valerian, often replaced by small doses of luminal or chloralamide. In most cases, however, barbiturate was usually necessary to produce sleep. It must be realised that to rely upon hypnotics without seeking out and treating the condition underlying the demand for them was asking for trouble. The doctor's place as confidant often enabled great psychological help to be given by a general practitioner. In 35 years' experience, Dr. Simmons had never seen a case of habitual addiction following the use of barbiturates. Recently he had cured a case of persistent hiccough of cardiac origin by a combination of belladonna and phenobarbitual known as Belladenal.

Dr. MARGARET VIVIAN (Bournemouth) stated that her experiences in her own nursing home for mental patients was that narcotics should be regarded as emergency measures and not as remedies likely to lead to cure. Of all forms of restraint drug restraint was the least desirable. Administration of narcotics over a long period was a confession of failure to discover the cause of the symptoms demanding such treatment. Patients suffering from serious insomnia were never easy to deal with. Drug addicts suffering from withdrawal symptons were also a very grave problem. Dr. Modinos, the physician in charge of the European hospital in Alexandria, had been treating many cases of rheumatism by auto-sero-therapy—i.e., he blistered the patient and re-injected the blister fluid. One day a patient who wished to be treated for rheumatism proved to be a cocaine addict, and to the doctor's surprise, he found that after three injections of the blister fluid, the patient neither needed nor desired the drug. There were many drug addicts in Egypt, and Dr. Modinos decided to try his blister fluid on all those who sought his help. In a communication to the Paris Academy of Medicine he had described the treatment of eight typical cases, including patients addicted to morphine, heroin, cocaine and hashish. From two to five injections of the blister fluid sufficed to cure them all of any need or desire for their drugs. The word "cured" meant that the patient no longer needed or desired his drug. If he relapsed, he did so deliberately and no power on earth would prevent that type of fool from reverting to his folly. So far, she had tried this method on only one case, but the result was astonishing. The patient was a doctor, who had been taking up to 3½ grs. of morphia for nearly three years. He was anxious to be cured, but had failed to cure himself. After the first blister fluid injection, his daily dose was comfortably reduced to 1 gr. in the 24 hours. The second injection produced the most surprising result, the morphine being discontinued without any of the usual distressing withdrawal symptoms. A third injection, as Dr. Modinos usually gave, had caused mild protein shock, which hindered complete recovery, but the patient was able to go home at the end of the third week, and he assured her that he had no craving for morphia.

Dr. EDGAR MARTIN (Salisbury) said that although narcotics multiplied, sufferers from mental illness, like the toll of the road, went on increasing. It was not the drug that was to be blamed, but the use made of it. Each patient must be considered individually and the narcotics carefully chosen to suit individual needs. Doctors should not permit themselves to be dominated by outworn opinions and customs, but should have the courage of their convictions and experience.

Dr. R. EAGER (Exminster Mental Hospital, Devon) spoke of the lack of available guidance in the use of narcotics and the tendency to their indiscriminate use. Paraldehyde, for example, was given in mental hospitals in this country, because it was regarded as safe and not habit forming; its excretion through the lungs, however, made it a dangerous irritant of the mucous membrane. It was given far too often without respect to the individual. The use of alcohol as a nightcap was, as Lord Horder had said, of considerable value. Dr. Eager discussed the uses of various other narcotics in some detail, but in conclusion stressed the importantce of seeking the cause of symptoms rather than resorting to hypnotics. Attention to general health and the way in which the day was spent, and the wise use of occupation therapy, which was greatly encouraged in his own hospital, should go far to remove the necessity for the use of narcotics for mental patients.

Sir ROBERT ARMSTRONG JONES (London) spoke of the essential need for sleep and stressed the danger of noise to the nervous system.

Dr. T. A. WILLIAMS (Bordighera) referred to Pavlov's definition of sleep as an inhibition. It was a form of escape from metabolic tension which otherwise would lead to exhaustion. It was important to remember this when dealing with cases of insomnia. He stressed the psychological factor, especially anxiety as a cause of sleeplessness.

Dr. AGNES SAVILL (London) referred to treatment by the constant current which was started by Dr. Leduc. She had found it of great value in cases of

mental strain and fatigue resulting from mental work. She thought that the use of music as a sedative had not been sufficiently considered.

Prof. W. S. DAWSON (Australia) spoke of the value of sedatives in the treatment of nervous children, especially by small doses of bromide and the barbiturates. He stressed the importance of a full inquiry into all the circumstances of the child's life. Psychological difficulties could not be cured by drugs alone. He spoke of the experiment in the treatment of dementia præcox by prolonged narcosis with somniphaine, which he had carried out with Dr. Mary Barkas at the Maudesley Hospital; the results had been very disappointing.

Dr. EDWARD MAPOTHER (London) said that he had tried morphia on depressed and melancholic patients with unsatisfactory results. He said that somniphaine was useful on account of its persistent effects, but that it had considerable danger when used to produce twilight sleep.

Dr. DORIS ODLUM spoke of the value of ammoniated tincture of valerian as an adjuvant to bromide, especially in the treatment of the psycho-neuroses. She had found that the ordinary B.P. drug was more effective than the proprietary odourless preparations.

REPLY

Lord HORDER, in summing up, agreed that the adolescent was better for too much sleep rather than too little, but after the age of 20, over-sleeping was nothing but a bad habit and represented an attempt to escape from the realities of life; it should be resisted strenuously. Daylight saving ought not to interfere with the sleep of children merely from the point of view of going to bed by daylight. Darkness ought not to be essential to sleep. In regard to Leduc's treatment by the galvanic current, he thought the effects might be largely attributed to suggestion, but if it succeeded in soothing the patients, it was by no means to be despised on this account. He agreed as to the value of valerian.

NOTES FROM INDIA

(FROM OUR OWN CORRESPONDENT)

THE INDIAN MEDICAL COUNCIL

THE Medical Council for India is now a fait accompli. The Act which brought it into being was passed through the Assembly only with difficulty and in the face of much unofficial opposition. It was hard to see what particular features of the Act were distasteful to the medico-political "left wing," but in these days anything that has official backing is accordingly suspect. The catch phrase used by the critics of the Act was "the dictation of the General Medical Council" or, alternatively, "of the British Medical Association" (they appeared to consider them synonymous). The Council is not a "packed" official body, but at the same time sufficiently responsible, we should imagine, to satisfy the General Medical Council whose "dictation" amounts to the suggestion that there shall be some central body in India with which they can deal and which, amongst other things, will be responsible for maintaining the standard of the examinations for the degrees that they, the General Medical Council, are asked to register in England.

The Council held one meeting early in the year, and another in June, and have now elected their inspectors of examinations, Dr. Farquhar Macrae, Sir Kedar Nath Das, and Dr. R. S. Tirodkar. A somewhat inauspicious incident marked the opening meetings. At the first meeting, apparently through a misapprehension as to the significance of the decision, it was agreed that members of the Council should not be eligible for election as inspectors of examinations and that this should apply to the secretary also. As the secretary was particularly chosen for his experience in inspecting examinations which no one else in India has had, the decision was very unfortunate; the subject was, therefore, reopened at the next meeting, and the decision, in so far as the secretary was concerned, was reversed. It seems a pity that the Government representatives on the Council, who were apparently able to carry their motion at the second meeting, did not take more trouble to do so at the first and thereby obviate a charge of irregular procedure.

EPIDEMICS AND INOCULATIONS

Cerebro-spinal fever appears to be getting a firm footing in India. Small outbreaks have been reported in jails and other institutions during the last few years, but this year minor epidemics of the disease in Bombay and Delhi have attracted a good deal of public notice. In Calcutta a steady incidence of about a hundred cases a month for over a year has apparently not stirred either the authorities or the public. Admittedly most of these have been sporadic cases, and it has not been possible to trace any focus of the disease. The central research institute at Kasauli have now prepared a serum from local strains and are issuing it for trial in hospitals in various towns in India. Practically all the provinces of India have now decentralised their anti-rabic treatment. Bengal was one of the last to fall into line. An interesting result has been a falling-off in the treatments given; this suggests that a number of patients came for treatment for the sake of the joy ride to Calcutta; for not only did they get a pass on the railways for themselves and their attendants but they also got a subsistence allowance in Calcutta. Cholera has been comparatively quiescent in India for some years, but this year it is showing signs of increasing in a number of places. Lucknow has recently been "in the news" on this account, the United Provinces reporting a thousand deaths a week from this disease. The health authorities are carrying out an extensive inoculation campaign. Now news comes of a sharp outbreak in the Simla Hills, following the return of a pilgrim from Hardwar to his native village; prompt action by the Punjab health department appears to have resulted in an early control of this epidemic.

MALARIA IN MONKEYS

The chance discovery, in the kala-azar research department of the Calcutta School of Tropical Medicine two years ago, of a scanty plasmodium infection in a *Silenus irus* monkey and its passage to a monkey of another species, *S. rhesus*, which then developed a fulminant and fatal infection, has led to an enormous amount of experimental work with monkey plasmodia, not only in India, but in Europe and America. In two recent papers in the *Indian Medical Gazette* the relative effects of quinine and Atebrin, administered by different routes, on monkey plasmodial infections have been shown. The action of quinine is slower than that of atebrin—this is demonstrated very dramatically in four photomicrographs—but with the latter drug the parasites reappear after about fifteen days, whereas with quinine, though a low grade of infection usually persists for some months, it seldom reaches the clinical level, and eventually without any further treatment it appears to die out. Another interesting point is that in the case of relapse following atebrin, one dose will usually control the infection and save the monkey's life. Intramuscular injections appear to be more efficacious than intravenous.

LINKS BETWEEN LONDON HOSPITALS

LAST week we published news of a closer association between the medical schools of St. Bartholomew's, Guy's, and St. Thomas's. Immediately afterwards a report was issued by the London Voluntary Hospitals Committee (L.V.H.C.) which describes other associations and agreements and shows that London's hospital needs are being envisaged as a whole.

This committee, whose chairman and secretary are respectively Lord Riddell and Prof. L. S. Dudgeon, F.R.C.P., has been conferring with the hospitals and medical services committee of the London County Council, now presided over by Mr. Somerville Hastings, F.R.C.S. At a meeting on June 7th Mr. Hastings promised that the L.V.H.C. would be told at the earliest possible moment of any proposed alterations and extensions in the Council's service which were of sufficient magnitude and importance to interest the voluntary hospitals. He also said that his committee would be glad to discuss any such alterations with the L.V.H.C. This was in response to the suggestion of Lord Riddell, who, in reference to the fact that there were 96,000 beds in question, pointed out that "certain parts of the area seem to have no hospital accommodation at all; other parts are infested by hospitals." If the council thought the accommodation in any particular district was inadequate it might be well, he said, to agree on a joint plan of action and thus avoid future friction. He on his side promised that the arrangement should be mutual—that is to say, the L.V.H.C. will notify the London County Council of any important extensions or changes proposed by the voluntary hospitals.

An example of the efforts now being made to prevent overlapping was provided by a discussion on the extension of the out-patient department and receiving accommodation at the St. Andrew's (L.C.C.) Hospital at Bow.

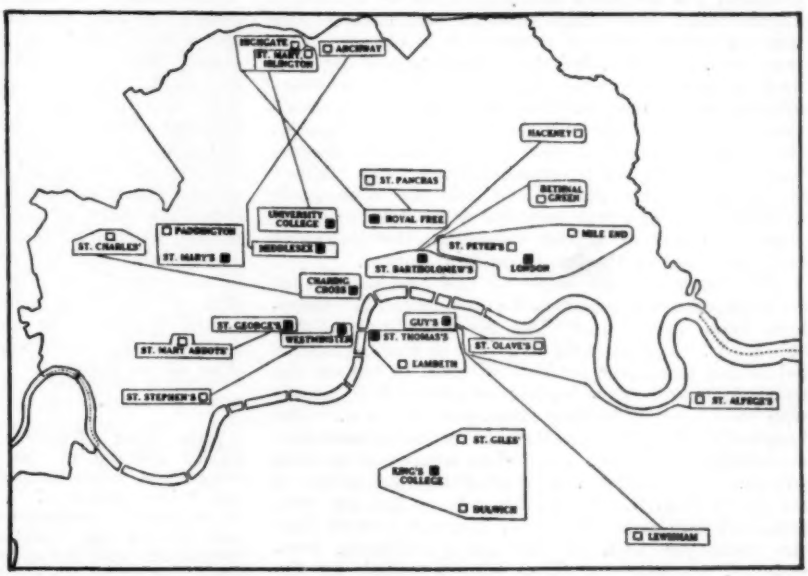
St. Andrew's is not far from the Poplar Hospital for Accidents, a voluntary hospital which has recently started to rebuild its out-patient department, and two representatives of the Poplar Hospital were present at the conference. The hospitals and medical services committee explained that there was no intention at this or any other L.C.C. hospital to provide a general out-patient department in the sense in which the term is used by voluntary hospitals, but merely to provide accommodation for the classes of cases (i.e., casualties, accidents, and other emergencies, antenatal and postnatal examination and treatment, after-care treatment for patients who had already been treated in the hospital, patients entitled to outdoor medical relief, &c., which may be admitted as out-patients to the Council's hospitals under a regulation made in 1931. The committee also pointed out that the areas from which most of the patients are drawn by the two institutions are materially different. The Poplar representatives were satisfied with this explanation and expressed their thanks to the chairman of the hospitals and medical services committee for the frank and friendly way in which they had been received.

The accompanying map shows the way in which the medical schools are now connected with municipal hospitals belonging to the L.C.C. The associations are as follows:—

Charing Cross	St. Charles'.
Guy's	Lewisham; St. Alfege's; St. Olave's.
King's College	St. Giles'; Dulwich;
London	St. Peter's; Mile End.
Middlesex	Archway.
Royal Free	Highgate; St. Mary, Islington; St. Pancras.
St. Bartholomew's ..	Hackney; Bethnal Green.
St. George's	St. Mary Abbot's.
St. Mary's	Paddington.
St. Thomas's	Lambeth.
University College ..	St. Mary, Islington.
Westminster	St. Stephen's.

As regards instruction in obstetrics special facilities have been provided by which students are allowed to reside for a fortnight at municipal hospitals, about ten cases being allotted to each of them during this period. Arrangements of this kind have been made between St. Thomas's and St. James's; the London and Mile End; St. George's and Lewisham; St. Bartholomew's and St. Giles's and St. Andrew's. It is hoped that facilities for this class of teaching will be extended.

Finally, mention must be made of the proposal to establish if possible a strong central committee to deal with the affairs of the London voluntary hospitals. It is felt that the London Voluntary Hospitals Committee covers too much of the same ground as the London regional committee of the British Hospitals Association, and a letter has been sent to King Edward's Hospital Fund for London recommending that "the voluntary hospitals should be represented by an elected executive body to take the place of the two existing bodies, and comprising adequate medical representation." The proposed committee is to be formed "with the object of promoting the efficiency



Sketch map illustrating the linking of medical schools (black squares) with L.C.C. hospitals (white squares).

of the service rendered to the public by the voluntary hospitals."

Both the present committees are elected by the hospitals, and they have, indeed, eight members in common. The British Hospitals Association Committee, however, has no medical representatives among its 33 members; whereas the 39 members of the L.V.H.C. include 21 doctors—namely, Mr. Bright Banister, Lady Barrett, Mr. L. E. Barrington-Ward, Mr. R. Davies-Colley, Prof. Dudgeon, Dr. Geoffrey Evans, Dr. Anthony Feiling, Dr. Hope Gosse, Dr. A. M. H. Gray, Sir Henry Jackson, M.P., Mr. J. P. Lockhart-Mummery, Dr. J. M. H. MacLeod, Mr. Robert Milne, Mr. Denham Pinnock, Dr. Eric Pritchard, Dr. Harold Pritchard, Mr. Cecil Rowntree, Dr. Bellingham Smith, Mr. T. G. Stevens, Dr. Hugh Thursfield, and Dr. C. M. Wilson.

MEDICINE AND THE LAW

Cross-infection at a Hospital: Negligence Claim Fails

AN interesting dispute over standards of hospital technique came before the Privy Council last week on an appeal from British Columbia (Vancouver General Hospital *v.* McDaniel). Miss McDaniel, suffering from diphtheria, entered the Vancouver Infectious Diseases Hospital, and there (it was alleged) caught small-pox. In effect, the question was whether it was negligence not to isolate small-pox patients in a separate building staffed by separate nurses. The plaintiff, on the advice of her doctor, Dr. Kennedy, became a paying patient of the hospital on Jan. 17th, 1932; she was to be attended by the hospital nurses and by Dr. Kennedy. Vancouver was then encountering a small-pox epidemic. On the 18th a small-pox patient was placed in the room next that of the plaintiff; three days later another was placed in another adjoining room; a week later a third was placed in a room almost opposite, and the next day four more were placed in other rooms on the same floor. Miss McDaniel, being thus surrounded by small-pox patients, Dr. Kennedy asked that she be moved to another floor where there were no such patients and where a different set of nurses was in charge. This was done. On Feb. 3rd she was discharged cured of diphtheria and she went home; but within ten days afterwards she was found to be suffering from small-pox, which, when she sued the hospital for negligence, the hospital's legal advisers were willing to assume had been contracted by cross-infection. She claimed damages for this illness and for the consequent disfigurement and was awarded 5000 dollars in the Supreme Court of British Columbia, the judgment being affirmed in the local Court of Appeal.

The Privy Council came to the conclusion that no negligence was established; the award has therefore been upset and the hospital's appeal has succeeded. The plaintiff had said it was negligence (*a*) to put small-pox patients so close to her on the same floor, and (*b*) to let her be attended by nurses who were also attending small-pox patients. The hospital's answer was twofold. First, it claimed that its technique had been adopted on competent medical advice. Lord Alness, delivering the judgment of the Privy Council, thought this defence had not been definitely established; it was, however, proved that the technique had, in material particulars, been endorsed by every medical witness called by the hospital. The evidence of these witnesses had been unambiguous, and it has been contradicted by no one except Dr. Kennedy. The hospital's second line of defence was that its technique was in accord with approved modern practice. This issue was to some extent covered by the same evidence. Dr. Kennedy again was the main authority adduced for the plaintiff. "In spite," he said, "of recent teachings, he preferred the old system of isolating small-pox cases in a separate building, to the new system which, in effect, substituted sterilisation for isolation." The technique of the Vancouver Hospital was proved to be in vogue throughout the rest of Canada and in the United States, and no instance was given of a hospital now following the technique preferred by Dr. Kennedy. This being the state of the evidence, the Privy Council found it hard to affirm that negligence had been proved against the hospital in respect of the technique complained of. Dr. McEachern, responsible for an annual survey of 3464 hospitals in the United States and Canada, had said that the Vancouver Hospital's system was the best known to medical science to-day. The proximity of small-pox patients to other patients in an infectious diseases hospital, he said, was quite an accepted modern procedure in the modern method of handling infectious disease; so also was the use of a common nursing staff.

"A defendant charged with negligence," observed Lord Alness, "can clear his feet if he shows he has acted in accord with general and approved practice." In their lordships' opinion the Vancouver hospital had done so by a weight of evidence not to be ignored. The judicial members of the Privy Council were offering no opinion of their own on the merits of the unit system as distinguished from the isolation system in small-pox treatment; they merely decided that, in view of the evidence, the charge of negligence failed.

Protest Meeting against Hospital Report

The Vancouver case indicates that it is reasonable to take the view of medical authorities as to the proper conduct of a hospital. The popular view is not always the same. About 1500 people attended a meeting held in the Free Trade Hall at Manchester to demand a public inquiry into the death of Mrs. Taylor who, in circumstances described in THE LANCET of July 21st, died in Crumpsall Hospital after her removal from St. Mary's Hospital, Whitchurch-street, Manchester, where she had just given birth to a child. The facts appear in the report, summarised here last week, of a committee on which expert gynæcological opinion was well represented. Speakers at the meeting complained that a committee composed entirely of men could not appreciate Mrs. Taylor's mental stress at such a time, and that a committee consisting only of medical members could not be trusted to criticise the actions of doctors. There was a complaint that the whole truth had not been told in the report, and it was declared that Mrs. Taylor died of "an overdose of red tape." A motion for a public inquiry was carried with one dissentient, against whom there was some demonstration at the close of the meeting.

MIDDLESEX HOSPITAL.—Speaking last week at a special meeting of the court of governors of this hospital, in which he reviewed the story of the rebuilding, Prince Arthur of Connaught took the opportunity of replying to suggestions that the new nurses' home had set up an "almost luxurious standard." He pointed out that the anonymous donor intended to give something in the nature of a university status to women of high degree of education and training, and to provide the finest nurses' home in the world.

PANEL AND CONTRACT PRACTICE

Mortgaging the Practice

SEVERAL times recently public attention has been drawn (see THE LANCET, 1933, ii., 1324) to the position of practitioners tied hand and foot to money-lenders who have made advances for the purchase of a practice. Some of these young doctors have signed a blank form of resignation from the medical list as a condition of obtaining a loan, which means that they may at any time be evicted upon completion of this form by the money-lenders. There are cases in which panel practitioners have surrendered their practices and the first intimation to reach the insurance committee concerned has been a notification that the mortgagees have appointed a locum tenens to carry on pending the sale of the practice. Such appointments cannot be recognised, for in the event of complaints arising it may be impossible to trace the original practitioner who is of course responsible for the conduct of the practice until his resignation has been accepted by the committee and the patients properly transferred or given the option of being transferred to some other insurance practitioner on the committee's list. This trafficking in practices is on the increase—in London alone there are more than 200 cases in which fees have been assigned—and the Insurance Acts Committee and the National Association of Insurance Committees are considering their action. It was decided in a recent case (O'Driscoll and Another *v.* Manchester Insurance Committee) that the remuneration to which a practitioner who is on the medical list of an insurance committee is entitled is a debt which is capable of attachment and, this being so, is a *chose in action* and capable of assignment. The London Insurance Committee suggest an emendation of the National Health Insurance Act, 1924, somewhat on the lines of Section 21 of the Act which runs:

> "Every assignment of or charge on, and every agreement to assign or charge, any benefits shall be void, and, on the bankruptcy of any person entitled to any benefit, the benefit shall not pass to any trustee or other person acting on behalf of his creditors."

This would not prevent a practitioner entering into an agreement with a corporation or company to advance money for the purchase of a practice and instructing his banker to make appropriate periodical repayment. The committee say they have no desire to interfere with legitimate arrangements for the purchase of practices, realising that in many instances practitioners cannot buy at all without borrowing, but an insurance committee should not be forced into the position of agent for either party. A resolution in the sense of the emendation mentioned above is to be tabled for the coming annual meeting of the National Association of Insurance Committees. This will make void every assignment of or charge on any sum payable by an insurance committee to a medical practitioner in respect of medical benefit except for such purposes as may be agreed between accredited representatives of the medical profession and the Minister of Health. The resolution if passed will establish the broad principle, leaving the actual drafting to specialists.

Health Propaganda

While the main function of an insurance committee is to administer medical benefit to insured persons living within its area, it is also charged with the duty of health propaganda. Many committees are not in a sufficiently strong financial position to do much of this sort, others take it up in the form of lectures on "how to keep fit." When one remembers the amount of health literature sent out by M.O.H.'s, and published in newspapers, to say nothing of lectures by numberless health societies, the question arises whether there is any need for set lectures by practitioners. Do not the young people of to-day already tend to become neurotic over every little ache or pain? And is not this one of the contributing causes of so much sick pay amongst married women? Birmingham does not think so. Last year its insurance committee decided that a series of lectures on "How to Keep Fit" should be delivered during the autumn and winter by practitioners with over a thousand insured persons on their lists who had not lectured during the last five years. Notice was to be given by an explanatory letter addressed to the insured person enclosing an invitation card and a reply-paid postcard. Twenty such lectures were given, 41,444 invitations being sent out, and 4517 persons attended—an average of 10·9 per cent. of those invited. The attendance at a particular lecture varied from 376 to 100, and the cost from £18 14*s.* to £8 16*s.* The total cost of the lectures was £274, or 1*s.* 1½*d.* per person attending. Since 1925 when these lectures began, 250 have been given at a cost of £2913; the highest attendance was 19 per cent. in the first year, and the lowest 6·5 per cent. in 1930–31. Some people would doubt whether this expenditure produces results commensurate with the money spent. It will be noted that last winter at best only one person attended out of five invited, while the cheapest lecture cost nearly £9. It might be argued that if those who took the trouble to go to the lecture really wanted to know how to keep fit they could consult their own doctor.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capts. C. V. Griffiths to *Victory* for R.N. Hospital, Haslar, and J. G. Danson to *President* for course.

Surg. Lts. S. R. G. Pimm to *Victory* for R.N.B., and H. de B. Kempthorne to *Victory* for R.N.B.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Sub-Lts. R. J. Carr and J. D. Spillane to be Surg. Lts.

ROYAL ARMY MEDICAL CORPS

Lt.-Col. L. G. Gibson retires on retd. pay.
Maj. J. B. A. Wigmore to be Lt.-Col.

ARMY DENTAL CORPS

Capt. J. L. Craig to be Maj.
Lt. F. J. McCarthy to be Capt.

TERRITORIAL ARMY

Lt.-Col. W. F. Denning resigns his commn. and retains his rank, with permission to wear the prescribed uniform.

General List.—Lt. D. L. Cran resigns his commn.

INDIAN MEDICAL SERVICE

Lt.-Col. A. W. Overbeck-Wright retires.

ROYAL AIR FORCE

Squadron Leader A. J. O. Wigmore is placed on the retired list on account of ill-health.

PUBLIC HEALTH

London Sewage and the River Thames

THE two most important tributaries of the River Thames are the great outfall sewers which discharge into it within a few miles of each other, at Barking on the north side and Crossness on the south. The treatment of these effluents has been the subject of a Royal Commission, and has continually occupied the attention of the Metropolitan Board of Works and its successor, the London County Council. The vastness of the problem has caused these bodies to walk warily, and, although experimental work has been undertaken on behalf of the Council by its officers, no material change in treatment has been effected since the system of sedimentation, either with or without the aid of chemical precipitants, was introduced in the last decade of the 19th century. It has however for some time been felt that further treatment of the increasing volume of effluent was necessary, and in a recent report to the Council the Fire Brigade and Main Drainage Committee note complaints about offensive smell from the river and suggest that it is the Council's duty without delay to improve things.

The activated sludge process had been tried on a small scale at the Crossness works, using a plant of rather special design in which the liquid to be treated was impelled by simple paddle wheels through long channels where its surface was exposed to the air and allowed to return through a lower channel. This was found to work extremely well and a much larger unit was authorised for the Barking outfall on similar but improved lines. After a sufficient amount of sludge had been prepared by aeration of successive volumes of settled sewage and conservation of the flocculent sediment thus produced the first large unit was put into commission in November, 1931. It was found that with volumes of sewage up to 8 million gallons a day an effluent was produced which could not possibly do any harm to the river, the maximum economy being obtained when treating 10 million gallons a day with from 7½ to 10 per cent. of activated sludge. Substantial economies have been effected by locating the re-aeration channels in a portion of the precipitation channels, thus taking advantage of existing works, and by the use of double compartment aeration channels. The Council have now decided to construct five additional units of similar capacity, which, with the existing plant, will enable rather more than one-third of the total dry-weather flow at Barking to be treated by this process. The estimated cost of the new plant, which will be spread over some years, is £520,000, apart from outlay on detritus pits and sludge digestion. The cost of running, including debt charges, is estimated at £40,000 a year, or a rate of about one-third of a penny.

These proposals, which seem to have attracted little public attention, are probably on a larger scale than anything before attempted; they are the end-result of long continued research, first on laboratory scale, through stages representing a small town and one of (say) 300,000 inhabitants. The new plant is based on the same principles as the old one-acre filter-bed at Barking which was the first attempt at biochemical treatment of sewage in this country. The essential agent being dispersed in the liquid to be treated as free humus the installation will be far more compact than one in which the agent is spread over a solid surface. The minor improvements mentioned should aid in sedimentation of the sewage before treatment by sludge, should reduce the amount of foul sludge which has to be dumped in the sea, and yield a useful source of power from the gases of fermentation. Substantial improvement may be expected in the summer condition of the Thames in the metropolitan reaches. Is it too much to hope that salmon will again consent to breed in the upper reaches?

Port Medical Service

A new edition of the "International Quarantine Directory," first issued in 1930 as the "Quarantine Annual," has just been issued by the Office International d'Hygiène Publique, and an English translation can be obtained (price £1 1s.) on application to the Ministry of Health. While the directory is of special interest to port sanitary authorities and port medical officers in connexion with their quarantine and other port sanitary duties, it should also appeal to shipping companies, to masters of ships and to ships' surgeons, who will find it particularly useful to have information conveniently to hand on port sanitary dues, costs of fumigation, quarantine anchorages, boarding stations, arrangements for medical treatment and on many other matters concerning the health organisation of the various ports at home and abroad.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 21ST, 1934

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0 (last week 2); scarlet fever, 2517; diphtheria, 1260; enteric fever, 38; acute pneumonia (primary or influenzal), 611; puerperal fever, 46; puerperal pyrexia, 81; cerebro-spinal fever, 26; acute poliomyelitis, 13; acute polio-encephalitis, 1; encephalitis lethargica, 6; dysentery, 8; ophthalmia neonatorum, 93. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 30th–31st was as follows:—Small-pox, 0; scarlet fever, 1699; diphtheria, 1549; measles, 736 (last week 894); whooping-cough, 275; puerperal fever, 30 mothers (plus 8 babies); encephalitis lethargica, 269; poliomyelitis, 2; "other diseases," 253. At St. Margaret's Hospital there were 20 babies plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 1 (1) from enteric fever, 22 (3) from measles, 6 (1) from scarlet fever, 12 (0) from whooping-cough, 38 (3) from diphtheria, 29 (12) from diarrhœa and enteritis under two years, and 14 (3) from influenza. The figures in parentheses are those for London itself.

Of the deaths from measles 2 each were reported from Gateshead, Newcastle-on-Tyne, Birmingham, and Stoke-on-Trent. Whooping-cough proved fatal in 2 cases at Croydon, Kingston-upon-Hull, Leeds and Liverpool. Diphtheria caused 5 deaths at Leeds. Three fatal cases of diarrhœa were reported from Liverpool, no more than 2 from any other great town.

The number of stillbirths notified during the week was 241 (corresponding to a rate of 35 per 1000 total births), including 43 in London.

ROBERT JONES AND AGNES HUNT ORTHOPÆDIC HOSPITAL.—The report for 1933 of this Oswestry hospital states that a beginning had been made with the scheme of reconstructing the temporary buildings, and a programme of work up to 1936 has been decided upon. During the year 1328 patients were treated—787 adults and 541 children. The daily average of 324 in-patients was larger than usual in consequence of extra provision having been made for the treatment of new cases of poliomyelitis. The average stay of each adult was 118 and of each child 105 days. The ordinary account showed a credit balance of £310, mainly due to the larger number of patients, and the increase of voluntary subscriptions.

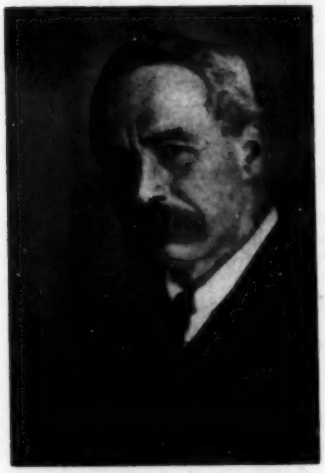
OBITUARY

MARCUS SEYMOUR PEMBREY, F.R.S., M.D. Oxon.

LATE PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF LONDON

WE regret to announce the death of Prof. Pembrey which occurred unexpectedly at Oxford in a nursing home on Monday, July 23rd. He had recently retired from his professorship, and had arranged to continue much scientific work in his new home near Oxford.

Marcus Seymour Pembrey was the son of an adept in oriental languages connected with the Oxford Clarendon Press. He gained at Christ Church, Oxford, at an unusually early age, an exhibition in science, and graduated in arts in 1889, took the M.B., M.Ch. degrees in 1892, and proceeded to the M.D. in 1895, having secured a Radcliffe Travelling Fellowship. In accordance with the rules of this prize he conducted medical research abroad during the period of its tenure, mainly at Würzburg and Kiel, after which he returned to Oxford as demonstrator of physiology under Burdon-Sanderson and collaborated with Prof. J. S. Haldane in varied scientific research. Valuable work now began to appear from him in the columns of the *Journal of Physiology* and of the *Philosophical Magazine*, among other papers being one in coöperation with Haldane on the determination of the composition of the air, and one, in association with August Gürber, on the influence of bleeding and transfusion on the respiratory exchange. This field of physiological chemistry he continued to cultivate for a long period, writing on the reaction of mammals to changes in temperature, on the influence of bleeding upon the respiratory exchange, and upon the effects of temperature on the output of carbonic acid, and making contributions to literature along similar channels—all worth while, and none more so than his papers in the *Guy's Hospital Reports*.



PROF. PEMBREY

[*Photograph by Elliott & Fry*

From Oxford Pembrey went as lecturer on physiology to the Charing Cross Hospital Medical School, and had made his mark as teacher when he transferred his services to the school of Guy's Hospital. While lecturer at Guy's he wrote with Dr. C. P. F. Phillips a short manual on the physiological action of drugs. The experiments described were planned to form an introduction to the investigation of the action of medicines upon the living human subject. The modes of applying electric and thermic stimuli to the muscles were set out, and numerous tracings given showing the effects on muscular contraction and on cardiac beats under the administration of saline solutions, and solutions of alcohol, chloroform, strychnine, cocain, digitalin, suprarenal extract, and many other active principles. In 1922 Pembrey was elected F.R.S., and in the same year he collaborated with Prof. Cathcart and the late Prof. Noël Paton in a valuable treatise entitled Practical Physiology." The book was based on a previous one written by Dr. A. P. Beddard, Pembrey himself, and others, and Pembrey contributed the section on advanced experimental physiology. The work rapidly went into further editions, the excellent features of the elementary experimental course being recognised while in Pembrey's section, where the animal work naturally took a more prominent position, the application to man was never lost sight of, and the human subject was profusely used.

We have received the following from two of Prof. Pembrey's colleagues; a fine picture of him is given in their direct words. "As a physiologist Pembrey's interests were distinctly catholic. A devoted lover of nature, he gleaned a wealth of information from the events of everyday life and the texts of his discourses were frequently taken from the farm. He was an ardent "vitalist" and the phrase "all things work together for good" was his guiding principle. He revelled in the struggle for existence and constantly preached the doctrine of self-determination. His early work dealt with respiratory exchange and his measurements of the respiratory quotients of the marmot still form the basis for discussions on the interconversion of fats and carbohydrates. His investigations of the variations in body temperature led to work with the Royal Army Medical Corps upon "heat-stroke" and the equipment of the soldier, and to research into questions of temperature-regulation and sweating. The physiology of reproduction was a constant interest and he published many papers upon the fœtus and newly-born. As a teacher he was not orthodox and his remarks savoured little of the text-book. He always considered that discussion and question and answer were far more satisfactory for educational purposes than systematic lectures. To foster this principle he founded at Guy's the Students' Physiological Society, and for over thirty years it has flourished as a nursery for debate and business procedure. Profoundly impressed by the wide range of variation in the so-called "physiological constants" he continuously waged war upon the term "normal" and to him places of decimals were anathema.

"Pembrey was very happy at Guy's and did everything possible to bring together clinicians and workers in the scientific departments. From his early days at the hospital, when he investigated the physiological aspects in Cheyne-Stokes respiration with the late Sir Frederick Taylor, he was a frequent visitor to the wards, and all the original work in his laboratories was of a practical character. Nowhere can students have received greater encouragement to carry out scientific investigations, and numerous papers in the *Journal of Physiology* and the *Guy's Hospital Reports* testify to the encouragement he gave to team work in research. To his juniors, in these combined exercises, he was a constant source of stimulation, and he was most punctilious as to the even distribution of both responsibility and credit. Almost all of the physicians on the hospital staff were his demonstrators or students, and they would find it difficult to express how much they owe to his friendship and his interest in their work and careers.

"He was indefatigable in his attendance at school meetings. He was almost too fond of arguing, but the school will always be indebted to him for the soundness of his advice and his wise counsel in times

of difficulty. A candid and outspoken critic, a loyal friend, his intense humanity made him the repository of the troubles of many of his students and colleagues. He never spared himself in his efforts to assist those whom he deemed worthy, and his cheery optimism helped to dispel gloom from many a difficult situation.

A. F. H.
W. R. S.

WILLIAM FOSTER CROSS, M.R.C.S. Eng.

Dr. W. F. Cross, who died in his sixty-second year on July 14th, at Falmouth, where he was living in retirement, was the son of Mr. W. H. Cross, Clerk to St. Bartholomew's Hospital from 1866 to 1905, and like his elder brother, Dr. E. W. Cross, was born and brought up within its precincts, going to school within a stone's throw—at Merchant Taylors'. Foster Cross qualified in 1896, held resident appointments at Tottenham Hospital and then returned to Bart's as senior house physician, in that capacity administering as was then the custom a large number of anæsthetics. When his term of office expired he took up anæsthetics as his career. In 1905 he succeeded Edgar Willett, and in 1916, on Richard Gill's retirement, became chief administrator. Early on he made a contribution on somnoform and was interested in new developments, but as time went on he limited himself more and more to the sequence gas-ether induction with Clover's inhaler followed by chloroform given on a piece of lint; being absolute master of this method he made it look deceptively easy. Cross was a painstaking teacher, and generations of students have cause to remember him with gratitude. He was always courteous and good humoured and was never known to be put out even under considerable provocation. On the golf course he was a genial and friendly soul.

CORRESPONDENCE

UNEMPLOYMENT ASSISTANCE: DETERMINATION OF NEEDS

To the Editor of THE LANCET

SIR,—We understand that under the new Unemployment Act a very large number of the unemployed and their families will come to depend partly or entirely for their support upon the allowances granted by the Unemployment Assistance Board.

Our experience, as physiologists and members of the medical profession, leads us to believe that there will be grave danger of widespread physical deterioration, especially among the growing generation, if a considerable section of the population, obliged for reasons beyond its control to depend for maintenance on public funds, is unable to purchase sufficient food and other necessaries for healthy existence.

We therefore welcome the provision made in the Act that the allowance granted to an applicant "shall be determined by reference to his needs, including the needs of any members of the household . . . who are dependent upon him." The definition of "needs" is necessarily left to the Board to determine; it is stated, however, that it is the function of the Board to promote the welfare of the unemployed and "to provide for the re-establishment of such persons with a view to their being in all respects fit for entry or return to regular employment." We suggest that a standard of needs which will fulfil the intention of the Act can only properly be arrived at in consultation with medical and other expert opinion qualified to estimate the minimum requirements of healthy living and the cost of satisfying them for families of various sizes.

"Needs" are conveniently divided into (1) food, (2) rent, (3) fuel, (4) clothing, (5) light, cleansing materials, and sundries. With regard to food, scientific knowledge has now reached the point where it is possible to determine fairly accurately the minimum necessary to maintain health and working capacity. The findings of the recent joint conference representative of the British Medical Association and Ministry of Health committees on nutrition on the constituents of a physiologically desirable dietary and the work of the B.M.A. Committee on specimen minimum diets can no doubt be used as a basis for estimating the minimum expenditure necessary.

With regard to other needs further investigation might have to be undertaken before a satisfactory standardisation could be agreed upon. An adequate expenditure on food will only be secured if some margin is allowed for the small conventional necessities of civilised life.

A scientifically determined scale such as we have in mind would obviously have to be adjusted to changes in the cost of living from place to place and from time to time.

We are, sir, yours faithfully,

E. FARQUHAR BUZZARD, STUART J. COWELL, J. B. S. HALDANE, LESLIE HARRIS, F. G. HOPKINS, J. C. G. LEDINGHAM, G. C. M. M'GONIGLE, CHARLES MCNEIL, V. H. MOTTRAM, J. B. ORR, CHARLES PORTER, HUMPHRY ROLLESTON.

RE-EXAMINATION OF MENTAL DEFECTIVES

To the Editor of THE LANCET

SIR,—The judicial *obiter dicta* expressed in a recent case have been adequately commented upon by yourself. Towards the end of the first and second years that a patient has been under the Mental Deficiency Act of 1913 he is visited and, if found to be still feeble-minded, he will not be officially seen by the Visitors for another five years, when a third report has to be made upon his condition and as to whether, if he is discharged, his further supervision and care will be adequate.

Now to make a report prognosticating a patient's state for five years would, indeed, in many cases be an impossible burden to impose upon the Visitors were it not that they are aware that the continuance of a patient under the Act can at any time be determined by others than themselves. But so far as their own powers are concerned, I believe it to be generally deemed that the arbitrarily ordained period of five years is absurdly long. The cases with which the Visitors are concerned are unhappily for the most part of so feeble-minded a degree that neither at the end of one, two, five or any number of years, is there any likelihood of discharge from the protection of the Act; but the trial upon which you comment is an excellent illustration of a great difficulty which often confronts the Visitors and in which they feel the five-year period onerous—namely, the case of the young person who may easily pass for normal in the class in which he or she has being, whose defect lies in an incapacity to appreciate current standards of moral conduct, whose volition is feeble and his scholastic

intellectual capacity below the average. The young male of this character tends to become an "in and out" delinquent and the young female a more or less overt prostitute and the mother of babies of various or unknown paternity. In these cases the Visitors may be in much perplexity as to whether a person of this character should be somewhere Where "Liberty" is interfered with but the means of supervision and care are adequate or in a situation of which prostitution and accidental and unintended motherhood are the likely incidents.

Whatever our views as to the conduct of the defendant in the recent case, it is at least conceivable that like offenders in like circumstances might be as much impressed with the normal appearance and conduct of the girls they have to do with as was the Judge in the case under discussion and the fact that the girl was under the Mental Deficiency Act as little reasonable and proper as it appears to have seemed to him.—I am, Sir, your obedient servant,

Harley-street, W., July 30th. E. D. MACNAMARA.

DISPLACEMENT OF THE INTERNAL EPICONDYLE INTO THE ELBOW-JOINT

To the Editor of THE LANCET

SIR,—I was much interested to read the comments of Mr. Fairbank and Mr. St.J. D. Buxton on my article. I am in complete agreement with them that the title should be reserved for the condition of subluxation with nipping of the epicondyle in the joint, and that cases of outward dislocation of the elbow with epicondylar fracture should be excluded from the category of intra-articular interposition of the epicondyle.

Their insistence on open operation, even in early cases where manipulation is possible, is prompted partly by the fear that the manipulation may damage the ulnar nerve and partly by the necessity for inspecting the damaged nerve, and, if necessary, transposing it. The latter reason is backed up by quoting the general principle that all fractures complicated by nerve injuries should be subjected to open operation. Those surgeons who follow this principle will naturally have no place for a manipulative reduction in their armamentarium. On the other hand, conservative measures in relation to closed fractures complicated by nerve lesions are very widely practised, and it is by no means generally held that such cases should be operated upon immediately. The musculo-spiral nerve, for instance, is not thus treated in closed fractures of the humerus complicated by wrist-drop.

It follows that in the type of case under discussion surgeons who do not see any necessity for immediate exploration of the ulnar nerve will rely on a manipulative reduction in those cases in which it is possible. If the nerve lesion persists an anterior transposition can be performed later and no harm has been done; if it recovers, the need for an operation has been entirely avoided with obvious benefit to the patient. The possibility of inflicting damage upon the ulnar nerve during the manipulation seems a very remote one, but until our practical experience of the method is greater the importance of this factor must necessarily be a matter of individual opinion.

Mr. Fairbank and Mr. Buxton in their letter dealt with many points in connexion with the mechanism of production, and I regret that the desire to be brief prevents me from discussing this aspect of the condition which is of very great interest to me.

I am, Sir, yours faithfully,

Liverpool, July 28th. NORMAN ROBERTS.

CALLING THE ANÆSTHETIST

To the Editor of THE LANCET

SIR,—Recently in the lay press a protest was made against the calling of an anæsthetist to give evidence at an inquest where death had occurred under an anæsthetic while an operation was being performed. The view was put forward that it is very rare for the anæsthetic to be the cause of death. This is also my experience, based on several years' post-mortems conducted on deaths occurring under anæsthetics, and during the present week I have had four such cases consecutively: three from large teaching hospitals, the fourth from a large municipal hospital, where the surgeon and anæsthetist were men of wide skill and experience. The causes of death in these cases were so unusual that I think they are worth recording.

CASE 1.—A man, aged 56, who had previously been cystoscoped, was undergoing an operation for papilloma of the bladder. A question had been raised as to whether this growth was malignant. The patient was prepared with avertin and given gas and oxygen anæsthesia. The papillomatous growth was widely excised by a diathermy knife. After 20 minutes the patient suddenly changed colour and collapsed on the table. The usual restoratives were applied without avail. The post-mortem in this case revealed an old patch of myomalacia cordis with a sclerotic right coronary artery which had been completely occluded. Death was due to coronary thrombosis in which clearly the anæsthesia played no part.

CASE 2.—A woman, aged 62, was being operated on for a carcinoma of the breast which she had had for some months, but had refrained from seeking medical advice. She was prepared in the usual way with avertin and a gas-oxygen-ether anæsthesia was used. The surgeon stated that, after making the usual incisions preparatory to amputating the breast and cutting the pectoralis major, he heard a slight hissing sound. Shortly after the patient collapsed, becoming cyanosed and, finally, respiration ceased. The usual restorative measures, including cardiac massage, were unsuccessful. In this case the post-mortem showed a carcinoma of the left breast, with a large mass of glands in the axilla and in close relation to the axillary vein. The lungs were collapsed; there were a few enlarged glands which looked malignant in the mediastinum. On opening the heart, the whole of the right side was full of froth and blood. The tricuspid valve was raised by a mixture of air and blood. The heart was in diastole. The cause of death in this case was clearly air embolism, and again the anæsthetic had nothing to do with the death.

CASE 3.—A patient, aged 28, a meat porter, was undergoing an operation for a submucous resection of the septum. He was a perfectly healthy man. The nose had been previously packed with 10 per cent. of cocaine and adrenalin. The anæsthetic used was A.C.E. administered through a Hewitt's airway. The posterior nasopharynx was carefully packed by the surgeon with a marine sponge. The operation proceeded normally, and after ten minutes or a quarter of an hour the patient became cyanosed, respiration failed, and he collapsed. Again the usual restorative measures were used without success. The post-mortem in this case revealed a perfectly healthy man. The trachea and lungs, however, were full of blood, which must have come by some means from the naso-pharynx. Death in this case was due to asphyxia from hæmorrhage into the lungs, and again the anæsthetic was not responsible.

CASE 4.—A woman, aged 40, was being operated on for exophthalmic goitre. The right lobe of the thyroid had been removed and half the left lobe. Ether and avertin was the anæsthetic employed. She was returned to the ward in fair condition, and some time afterwards respiratory embarrassment began and she was cyanosed and dyspnœic. The resident, thinking that there was some blood-clot in the wound, took out a few stitches and released a little clot. Her condition, however, did not

improve, and later the surgeon returned and did a tracheotomy, having previously passed a catheter into the larynx. The patient died during the second operation, a few hours after the first, under a gas anæsthesia. In this case there was a large hæmorrhage down both scalene muscles and behind the sternum: the lungs were slightly congested. The abdomen showed advanced tuberculous peritonitis. Death in this case was due to hæmorrhage from the thyroid wound and shock, possibly accelerated by the abdominal condition. Clearly the anæsthetic here played no part in the ultimate issue.

I have stated these cases, which happen to be the last four post-mortems I have done this week, of death under anæsthetic to add strength to the contention that the anæsthetist is rarely to blame. It is also true—and we have it on the authority of Sir Thomas Lewis—that the heart is very rarely unable to stand the strain of an anæsthetic. Therefore, I would add my plea to the anæsthetist mentioned in the beginning of this letter, that no useful purpose is served by calling an anæsthetist in these cases except where there has been an obvious accident, such as the wrong joining up of a Junker apparatus. To do so frightens the public and achieves no useful object. Death, in my view, is far more likely to be due to surgical interference, and if evidence is required, then I think the surgeon and not the anæsthetist should be called. In any case, it is the surgeon who is responsible for the operation. I am, Sir, yours faithfully,

Harley-street, W., July 25th. GERALD SLOT.

PERINEO-ABDOMINAL EXCISION OF THE RECTUM

To the Editor of THE LANCET

SIR,—In reply to Mr. Gordon-Taylor it must, I feel sure, be well known that Prof. Grey Turner in 1920 described perineo-abdominal excision as a second stage operation after colostomy. Cases treated by this operation have been shown at the Royal Society of Medicine on many occasions in recent years, and Mr. Gordon-Taylor has given the support of his great experience to it. (Proc. Roy. Soc. Med., 1930.) Within the last two years I have referred with appreciation to this operation in the Index of Prognosis (4th Edition, p. 466), and in my book on rectal surgery where, after describing Prof. Grey Turner's operation, I mentioned (p. 216) two cases in which I had done perineo-abdominal excision in one stage. My recent paper is the outcome of further experience on these lines.

The majority of new operations or manœuvres are developed from already existing methods, and in the present instance I had thought that the title "perineo-abdominal excision *in one stage*" would indicate that the operation to be described was a new or different modification of the existing method. There was no intention on my part to claim originality for the title "perineo-abdominal," and I regret the omission of a reference again to Prof. Grey Turner's original two-stage operation; by doing so the evolution of the one-stage operation would have been shown more clearly, particularly to those who had not seen my previous references.

I am, Sir, yours faithfully,

Harley-street, W., July 30th. W. B. GABRIEL.

THE TREATMENT OF CORNS

To the Editor of THE LANCET

SIR,—During the recent discussion about the recognition of Chiropody at the British Medical Association meeting, it was freely accepted that corns should be cut, also that "long continued treatment" is needed for corns. It is certainly true that, if corns are treated by being cut, they must be treated for a long time. When, however, it is realised that corns are the result of pressure due as a rule either to faulty footwear or to faulty muscle balance, treatment is brief and its results are lasting. Incidentally, restoration of normal muscle balance, the use of suitable shoes, and the eradication of corns saves the patient from foot strain and other disabilities.

I am, Sir, yours faithfully,

JAMES K. MCCONNEL.

St. John's Wood, N.W., July 30th.

GLANDULAR FEVER AND INFECTIOUS MONONUCLEOSIS

To the Editor of THE LANCET

SIR,—In his first Lumleian lecture, appearing in your last issue, Dr. H. L. Tidy, referring to the case which I reported to the Royal Society of Medicine in 1915, kindly credits me with something which rightly belongs to another. It was Dr. Parkes Weber who, in the discussion that followed my paper, called attention to the similarity of my case to those published by Marchand and Cabot, and referred me to their papers. Dr. Parkes Weber's wide knowledge of medical literature has in the past so often helped me in the investigation of obscure cases that I hasten to take this opportunity of acknowledging my indebtedness to him in this instance. It may be of some general interest to add that the patient whose case was recorded in 1915 is to-day a healthy active man, who has never had a day's illness since his attack of glandular fever in 1911.

I am, Sir, yours faithfully,

Sheffield, July 31st. ARTHUR J. HALL.

TRAFFIC IN WOMEN IN THE EAST

A CONFERENCE on this subject was held on July 25th at the London School of Hygiene and Tropical Medicine under the auspices of the joint standing committee of the British Social Hygiene Council and the Conference of British Missionary Societies. Lord Lytton presided at one session and Sir Cecil Clementi, late Governor of the Straits Settlements, at the other. The objects of this preliminary conference were to consider means of making the conference proposed to be held by the League of Nations (probably in Singapore) effective, by increasing interest in the subject among non-official organisations in the East, so that coöperation between governments and non-official organisations in combating the traffic in women might be made easier. Support for these objects was given by the High Commissioner for India, by representatives of the Chinese and Japanese Legations, the Dutch East Indies, and the League of Nations, and by the Bishop of Singapore, prominent members of Protestant and Catholic Missions in the East, and the Salvation Army. The Colonial Office, the Home Office, and the War Office were also represented. Notice was taken of the general movement in the East, as well as in Europe, for the elimination of the tolerated brothel system, and it was stated that medical authorities had very largely ceased to believe in the effectiveness of this system in preventing disease and in assisting in the maintenance of the health of the community. Abolition of regulation and toleration and the setting up of free and efficient venereal diseases treatment centres, available for the whole community, were now believed to be the line of progress on the medical and health side, so that there was no longer any serious conflict between the moral and medical outlook.

A number of resolutions were carried strongly supporting further action by the League of Nations and by the various Eastern Governments, with a view to securing inter-governmental action, which at present, it was stated, is the main hindrance to the elimination of the traffic in women and children.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Summer Adjournment

Both Houses of Parliament adjourned on Tuesday, July 31st, for the Summer recess. They will reassemble on Oct. 30th, but in accordance with recent procedure power was given to the Lord Chancellor and the Speaker of the House of Commons to summon their respective Houses earlier if necessity should arise.

Safety and Health in Mines

On July 17th, in Committee of Supply, Mr. E. BROWN, Secretary for Mines, said that there were now open and completed at the moment 145 pithead baths provided out of the Welfare Fund, and 25 were under construction, making a total of 170. Previous to the establishment of the Fund there were 32 other baths, so that at the moment they had 202 pithead baths either constructed or under construction, and the number of employees provided with baths was 248,332, or nearly one-third of the men on the books of the collieries. He had heard the great reform undertaken in the new regulations regarding lighting described by a prominent mining engineer as in his judgment the greatest reform for a generation.

The new Order fell into three parts. Part I., which comes into operation on Sept. 1st next, dealt with lighting by means of safety lamps; Part II. dealt with lighting by means otherwise than by safety lamps; and Part III. dealt with lighting above ground and with the very important subject of whitewashing underground. Part II. came into operation on July 1st this year, and Part III. comes into operation on Sept. 1st this year. Part I. was designed to raise the standard of lighting by means of safety lamps, and it was estimated that inside the two and a quarter years allowed for the change-over the lamps provided under the new standard would give twice as much light as the lamps now used, and 300,000 lamps would have to be replaced. As regarded Part II., in safety lamp mines the use of fixed lights provided by current from the electric mains had hitherto been restricted to areas not within 300 yards of the face. Part II. extended this lighting under special precautions to roads ventilated by intake air up to 50 yards from the working face, and in other roads up to 100 yards from the working face. Part III. provided for sufficient lighting on the surface where persons regularly worked, and underground at shaft insets and shaft sidings; while the whitewashing would take place compulsorily at important places underground such as sidings, landings, pass-bys, offtakes, and rooms containing engines, motors, and other appliances.

DEEP MINES

Mr. TINKER called attention to the extreme depth —over 4000 feet in some cases—at which miners were called upon to work and the high temperatures which they had to endure. He said he hoped that this matter would be dealt with as mines were getting deeper and deeper.

Lord BALNIEL said that infinite trouble and care had been taken in order to deal with this problem. He did not think that anything more could be done considerably to reduce the temperature. Modern science did not know the way.

Mr. DUNCAN GRAHAM urged a rigid fixed working day for miners, a maximum beyond which he should not be asked to go, and a shorter working day for the men in deep mines.

Mr. BROWN, in reply, quoted Dr. J. S. Haldane, who pointed out in a note dated November, 1933, that the Royal Commission on Health and Safety in Mines (1909) unanimously drew the conclusion that "on the whole we do not think that any good object would be served by prescribing a limit of wet bulb temperature for the carrying on of work in mines." Neither the Royal Commission of 1909, Dr. Haldane went on, nor any report of the Deep and Hot Mines Committee, has suggested any definite limitation of the depth at which coal could be worked beyond pointing out that the greater the depth the better the ventilation must be. The idea that 4000 feet would prove to be about the maximum depth at which men could work dated from a time when knowledge of the subject was still very limited.

Unemployment and Health Insurance

Mr. CLARRY said that in response to a request by certain of his constituents he begged to present a petition signed by 16,390 persons, mainly resident at Newport (Mon.), protesting against the provisions of the new Unemployment Act and the National Health Insurance (Amendment) Act, 1932. The petitioners alleged that the provisions of these Acts embodied a savage attack on the unemployed and their families, and further that they would inflict severe privations on thousands of men, women, and children, and cause disruption of family life and the pauperisation of the unemployed through circumstances over which they had no control.

Progress of Town Planning

In the House of Commons on July 26th, on a vote for the Ministry of Health, Sir P. HARRIS said that housing and town planning ought to be regarded as one problem. In Liverpool they had a complete town planning scheme, and in the County of London already there were 18 town planning schemes covering an area of something like 37½ square miles. That was all to the good. He understood that the London County Council were going to make a complete survey and a complete scheme of town planning inside their boundary. But he believed that the Minister of Health would agree that all boundaries made for town planning were more or less artificial. There was now no real division between the town and the country. In London, what made the problem so difficult was that of the increase of 920,000 persons according to the last census fewer than 500,000 was due to natural increase, or the ordinary growth of the population. The balance was made up by the migration of over 400,000 people. They were flowing into this big area unorganised, unplanned largely, and there was no authority that was big enough to apply its mind to the position except the Government, particularly the Ministry of Health, and he might add the Ministry of Transport and the Ministry of Labour. More than half of this increase of population was outside the county; inside the county the population was going down. In the greater London area there were 135 local authorities. This led to a division of responsibility in the matter of town planning which made the problem almost insoluble. The first thing to be done was to have a green girdle round London to stop the further urban development of London unless there was a reasonable provision for parks, gardens, and open spaces. He urged the Minister of Health to give a lead to the local authorities, to get them together and encourage and stimulate their coöperation so that they might have town planning, not next year or the year after, but in 1934.

Sir FRANCIS FREMANTLE said that houses were growing up generally in a way that was a disgrace to the present age. Town planning required to come first and the housing afterwards. Planning was slacking unnecessarily owing to difficulty in visualising the future. He asked the Minister to tell local authorities that it was in their power now to plan provisionally for areas now purely rural, leaving the way open for a supplementary scheme later. It was essential to plan for the immense movement of population. About 100,000 persons were being moved out of London every year and settling down in the areas round. As far as possible they wanted to associate that movement with the resiting of factories. From a national point of view they did not want to encourage factories to move down from

the North. The movement of factories must be allowed largely to decide itself, and the placing of houses ought to follow the placing of factories.

Sir HILTON YOUNG, Minister of Health, said that housing work and planning work had been brought together into a single department. His policy had always been directed towards the promotion of regional planning committees wherever they were required. Wisdom and progress were to be obtained by promoting reasonable coöperation between those authorities and not by arbitrarily overriding them. In ten years they had increased the number of executive committees from one to 75. He thought they had probably the most practical and efficient arrangement that they could get for the planning of London as long as London government was on the present lines. But he agreed that a problem for the future was the rationalisation of London government as a whole, in order, among other things, that the planning of London might be dealt with on a more reasonable basis.

Road Traffic Bill

In the House of Commons on July 26th a motion to agree with the Lords' amendments, deleting the provision in Clause 1 that the speed limit of 30 miles an hour should not apply in built-up areas between midnight and 5 A.M., was carried by 158 votes to 24. The House also agreed with the new clause inserted by the Lords making it illegal to sell a motor vehicle which was not fitted with an efficient silencer.

HOUSE OF COMMONS

THURSDAY, JULY 26TH

Encephalitis following Vaccination

Mr. GROVES asked the Minister of Health whether his attention had been called to the death of Leonard George Jennings, aged 18 years, who died from encephalitis resulting from vaccination, performed as a condition of employment with the Gas Light and Coke Company; whether he was investigating this case; and whether he would call the attention of employers of labour to the possible dangers of vaccination.—Sir HILTON YOUNG replied: The answer to the first two parts of the question is in the affirmative. As regards the last part, the opinion has already been expressed in circulars issued by my Department that it is not generally expedient to press for the vaccination of children of school age or of adolescents who have not previously been vaccinated, unless they have been in personal contact with a case of small-pox or directly exposed to small-pox infection.

Maternal Mortality Circular

Captain ELLISTON asked the Minister of Health when he proposed to issue to local authorities the promised further circular on maternal mortality.—Sir HILTON YOUNG replied: I hope to issue this circular in the early autumn.

MONDAY, JULY 30TH

Eggs Supplied to Pensions Hospitals

Captain HEILGERS asked the Minister of Pensions the country of origin of eggs supplied to patients in the Queen Mary's Hospital, Roehampton.—Captain HUDSON, Lord of the Treasury, replied: The country of origin of the eggs used at this and other Ministry hospitals varies according to the season and current contract prices. A preference of 25 per cent. ad valorem is given to English eggs over foreign.

Diphtheria at a Grammar School

Mr. HALES asked the Minister of Health if his attention had been called to a serious outbreak of diphtheria at the Chipping Campden grammar school and that the outbreak was stated to have been spread by those students attending the school who used a private swimming pool at Broad Campden, the water of which was not changed more than once a year; and if he would take steps to have all such pools brought under the supervision of his inspectors.—Mr. SHAKESPEARE replied: Only one case of diphtheria was notified in the Campden Rural District during the last four months. In his annual report the Medical Officer of Health reported that 21 cases occurred in 1933, most of them at this school. My right hon. friend has no information that the outbreak was attributed to infection from bathing, and he is not aware that the causal organism of diphtheria has ever been found in water. As regards the second part of the question, the Public Health Act, 1875, gives the local authority or any of their officers a right of entry to any premises for the purpose of ascertaining whether any nuisance exists, and my right hon friend does not think that it would be good policy for detailed inspection of swimming pools to be carried out by officers of the central authority.

Inspection of Private Swimming Pools

Mr. HALES asked the Minister of Health what control was exercised by his department over private swimming pools for which a charge for admission was made; if regular inspections were made by qualified inspectors of the water; and, if not, would he in the public interest take the necessary steps to see that they were brought under his jurisdiction.—Mr. SHAKESPEARE replied: My right hon. friend has no statutory powers to exercise direct control over these pools. As stated in my answer to a previous question the Public Health Act, 1875, gives a right of entry to the local authority or any of their officers for the purpose of ascertaining whether any nuisance exists and my right hon friend proposes to call attention to these powers in his next annual report, which will shortly be issued.

Exhaust Fumes of Motor Vehicles

Mr. ALBERY asked the Minister of Transport whether any steps had recently been taken to ascertain what harmful effects are being suffered in crowded thoroughfares as a result of the exhaust fumes of motor vehicles.—Mr. HORE-BELISHA replied: This matter came under the consideration of a Home Office Departmental Committee a year ago. Their report did not suggest that there was any such evidence of injury being caused by exhaust fumes to the health of drivers and conductors or of persons using the highway as would justify legislative action. I may, however, add that the examiners appointed under the Road Traffic Act, 1930, and the Road and Rail Traffic Act, 1933, are required to look for defects in exhaust pipes in the public service vehicles and goods vehicles which they examine.

Use of Motor Horns at Night

Mr. WILLIAM SHAW asked the Minister of Transport, whether it was his intention to schedule areas in which during certain night hours the use of motor-horns would be forbidden; and whether this experiment was to be confined to the metropolitan area.—Mr. HORE-BELISHA replied: I intend to try this experiment and not to limit it to the metropolitan area.

Hospital Treatment of Pensioners

Sir WILFRID SUGDEN asked the Minister of Pensions the future policy of his department in regard to hospital treatment of pensioners; whether it was proposed to continue the existence of Ministry of Pensions institutions or whether pensioners would receive in-patient treatment in voluntary and/or rate-aided hospitals at the Ministry's expense; when such change, if any, would be effected; and if he would state the number of pensioners admitted to Ministry institutions for treatment for the years 1931, 1932, and 1933, and the number admitted to other institutions for treatment, approved by the Ministry, for the same years.—Major G. C. TRYON replied: The policy of the Ministry is to make use of civil hospitals as far as possible consistently with the interests of the Ministry's patients, but there are certain types of war disability as, for example, nervous and mental disorder, epilepsy, paraplegia, and certain types of surgical case, for which either ordinary civil institutions do not provide

or which can be more suitably dealt with in specialised Ministry institutions. No change is contemplated in this policy, which will continue to be pursued so long as the interests of the patients demand. The particulars asked for in the remainder of the question are as follows :—

Number of cases (not including pensioners certified as of unsound mind in Public Mental Hospitals) admitted to hospital as in-patients—

	1931	1932	1933
In military hospitals, including Queen Mary's Hospital, Roehampton	7,501	6,264	5,790
In voluntary hospitals and general civil hospitals ..	3,478	2,541	1,966
Total	10,979	8,805	7,756

TUESDAY, JULY 31ST

Medical Inspection of Mental Defectives

Dr. O'DONOVAN, asked the Minister of Health if his attention had been drawn to remarks by the Recorder of the City of London concerning a woman detained at Epsom under sub-section (1) of Section 11 of the Mental Deficiency Act, 1931; and if he would institute inquiries whether any special amendment of the Act with regard to the frequency of medical inspections was called for in the light of experience of the working of the Act.—Sir HILTON YOUNG replied: Yes, sir. These remarks appear to have been based upon inadequate information. Apart from the periodical statutory reviews to which the Recorder referred, mental defectives in institutions are under the constant observation of the medical staff. Suitable cases are frequently given leave of absence to test their fitness for discharge, and the Board of Control can discharge any patient at any time. The second part of the question does not, therefore, appear to arise.

Certified Dairy Herds in Scotland

Commander COCHRANE asked the Secretary of State for Scotland whether he was aware that, in the case of a certified herd, the Department of Health for Scotland stated that the proprietor had no right of appeal against the decision of a county veterinary surgeon and had declined to appoint an impartial arbiter at the expense of the proprietor; and whether, in view of the importance of the matter to all proprietors of certified herds, he proposed to take any action.—Sir GODFREY COLLINS replied: Under the Milk (Special Designations) Order (Scotland), 1930, which regulates these matters, there is a right of appeal to the Department of Health by the licencee of a certified herd against the decision of a licensing authority to refuse or revoke a licence. There is no provision for an appeal on any other ground, and I understand that although the Order, or one in similar terms, has been in operation for many years, no request has been made for an extension of the right of appeal. The Order is at present under revision in view of the provisions of the Milk Act, 1934, and the question whether the Order should be amended in this direction will be considered.

Turkish Compensation for Death of British Officer

Mr. EDEN, Lord Privy Seal, stated that the Turkish Government had of their own initiative expressed a desire to make a voluntary payment to the relatives of the late Surgeon-Lieutenant Robinson, who was shot dead by a Turkish sentry off the coast near Samos. The compensation, he said, amounted to £2000, and he understood that this sum had already been paid.

MEDICAL NEWS

Royal College of Physicians of London

At a meeting on July 26th, with Lord Dawson of Penn, the president, in the chair, the following fellows of the college were elected officers for the ensuing year :—

Censors: Prof. W. Langdon Brown, Dr. Charles Bolton, F.R.S., Dr. Gordon M. Holmes, F.R.S., and Dr. Letheby Tidy. Treasurer: Dr. S. P. Phillips. Registrar: Sir Raymond Crawfurd. Harveian Librarian: Dr. Arnold Chaplin. Assistant Registrar: Dr. C. E. Newman. Library Committee: Dr. H. R. Spencer, Dr. J. J. Conybeare, Dr. A. E. Clark-Kennedy, and Dr. J. D. Rolleston. Curators of the Museum: Dr. G. E. Beaumont, Dr. Maurice Davidson, Dr. H. Gardiner-Hill, and Dr. R. A. Hickling. Finance Committee: Dr. T. Watts Eden, Dr. C. R. Box, and Sir Charlton Briscoe.

The following were elected examiners :—Chemistry: Mr. Herbert Lambourne and Mr. C. S. Gibson. Physics: Mr. W. H. White and Prof. F. L. Hopwood. Materia Medica and Pharmacology: Dr. Philip Hamill, Dr. K. D. Wilkinson, Dr. E. Gordon Holmes, Dr. Clifford Hoyle, and Dr. R. St. A. Heathcote. Physiology: Prof. C. A. Lovatt Evans, F.R.S., and Prof. D. T. Harris. Anatomy: Dr. Thomas Yeates. Pathology: Dr. C. M. Wilson, Dr. C. F. T. East, Prof. Geoffrey Hadfield, and Dr. P. N. Panton. Medical Anatomy and Principles and Practice of Medicine: Dr. David Forsyth, Dr. C. M. Hinds Howell, Dr. Theodore Thompson, Dr. A. G. Gibson, Sir Maurice Cassidy, Dr. Reginald Miller, Dr. H. C. Cameron, Dr. A. E. Naish, Sir Stanley Woodwark, Dr. Anthony Feiling, Prof. W. H. Wynn, and Dr. J. W. McNee. Midwifery and Diseases peculiar to Women: Mr. J. M. Wyatt, Mr. A. J. McNair, Mr. Leslie Williams, Prof. Daniel Dougal, and Prof. R. P. Ranken Lyle. Public Health: (Part I.) Prof. M. E. Delafield, and (Part II.) Dr. C. T. Maitland. Tropical Medicine: Prof. R. T. Leiper, F.R.S., and Dr. N. Hamilton Fairley. Ophthalmic Medicine and Surgery: Dr. W. J. Adie. Psychological Medicine: (Part I.) Dr. R. D. Gillespie and (Part II.) Dr. S. A. Kinnier Wilson and Dr. A. A. W. Petrie. Gynæcology and Obstetrics: Mr. J. P. Hedley. Laryngology and Otlogy: Mr. Lionel Colledge. Radiology: Mr. James Hancock Brinkworth, D.Sc., and Dr. H. K. Graham Hodgson.

The following appointments were announced: Sir Henry Dale, F.R.S., as Harveian orator, 1935 (the forthcoming Harveian Oration in October next will be delivered by Dr. James Collier); Dr. D. T. Davies as Bradshaw lecturer, 1935; Dr. J. S. Bolton, F.R.S., as Lumleian lecturer, 1935; Dr. A. A. Moncrieff as Goulstonian lecturer, 1935; Dr. J. D. Rolleston as FitzPatrick lecturer, 1935; Prof. C. R. Harington, F.R.S., as Oliver-Sharpey lecturer, 1935; Prof. C. G. Seligman, F.R.S., as Lloyd Roberts lecturer, 1935; and Sir Bernard Spilsbury as Croonian lecturer, 1936.

The Murchison scholarship was awarded to Stanley George Browne, M.R.C.P., of King's College Hospital medical school. Sir Humphry Rolleston was re-elected a representative of the college on the executive committee of the Imperial Cancer Research Fund, and Dr. Letheby Tidy the representative on the General Medical Council.

The college expressed its full sympathy with the efforts of the Anti-Noise League to secure an abatement of avoidable noise.

The President briefly reported on the valuable work done at the request of the college by Dr. D. T. Davies, Dr. L. E. H. Whitby, and Dr. H. K. Graham Hodgson in a joint research into pneumococcal penumonia. The college undertook to sponsor the publication of this report.

The President reported the progress of the tuberculosis survey scheme, which had been approved by the comitia in principle on a previous occasion. He explained that it was intended to investigate pre-clinical tuberculosis, by means of clinical investigation radiological examination, and Mantoux-testing. A series of expert committees had sat and reported on standard techniques for the radiological and tuberculin investigations, so as to ensure uniformity throughout the working of the scheme. There had been great difficulties in arranging for the widespread coöperation between many different bodies and persons, by which means alone so large an enterprise could succeed, but all these problems appeared to have been solved. It is, however, proposed to institute the survey only on a

limited scale, in the boroughs of Camberwell, Bermondsey, and Westminster, during the first year, in case of difficulties arising, but it was the unanimous opinion of the experts who have been consulted that even if the scheme as a whole cannot be carried through very valuable information will be obtained.

A report of the committee of management was considered and the following recommendation of the committee was approved :—

"That the present regulations regarding the admission of graduates in medicine and surgery of recognised foreign universities be revised as from Oct. 1st, 1934, to provide that such graduates be admissible direct to the examination in anatomy and physiology, and, after passing in these subjects, be required to follow for 36 months the practice in medicine, surgery, and midwifery of a recognised medical school and hospital in Great Britain or Ireland before they are admissible to the final examination."

The following candidates satisfied the censors' board and were admitted members of the college :—

Clifford Edward Allen, M.D. Lond. ; Charles Barry Bamford, M.D. Liverp. ; Hugh Astley Cooper, M.B. Lond. ; James Fenton, M.D. Birm. ; David Glass, M.B. Belf. ; Idris Griffiths Jones, M.B. Lond. ; Kenneth David Keele, M.B. Lond. ; Alexander Kennedy, M.B. Lond. ; George Raymond Kirk, M.B. N.Z. ; Don John Telesphor Leanagé, M.D. Lond. ; Terence Joseph Lee, M.B. Melb. ; Leslie George Norman, M.B. Lond. ; Wilfred Harding Owles, M.B. Oxf. ; Albert Ray Southwood, M.D. Adelaide ; Archibald Sutherland Strachan, M.D. Glasg. ; Edmond Medonza Wijerama, M.D. Lond. ; and Hovsep Aghék Yenikomshian, M.D. Beirut.

Licences to practise were conferred upon 159 candidates (141 men and 18 women) who have passed the final examination of the Conjoint Board and have complied with the college by-laws. The following are the names and medical schools of the successful candidates, viz. :—

Winifred L. L. Acraman, Cardiff ; M. Altmann, Frankfurt and London ; Alberta I. Andrews, Royal Free ; Margaret D. Baber, Univ. Coll. ; K. C. Bailey, Camb. and St. Thos. ; Mary Barber, Royal Free ; T. L. Barbour, Camb. and Guy's ; C. Bard, London ; F. R. Berridge, Camb. and St. Geo. ; R. H. Blazeby, Guy's ; C. H. Bliss, St. Thos. ; J. R. Bodington, Camb. and London ; A. G. W. Branch, Bristol ; N. P. Brown, Camb. and Middx. ; E. J. Bury, Camb. and St. Mary's ; I. Byer, St. Bart.'s ; W. A. Carey, Camb. and King's Coll. ; R. M. Case, Birmingham ; Jean M. Cass, Royal Free ; A. M. Chapnick, Westminster ; S. C. Chatterjee, Calcutta and West London ; R. F. Clarke, St. Bart.'s ; S. G. Clayton, King's Coll. ; H. M. Clegg, Leeds; Gladys E. Clyne, Royal Free ; S. G. Collingwood, St. Bart.'s ; A. B. Concanon, Liverpool ; D. D. Cranna, Manchester ; F. H. Culshaw, Camb. and St. Bart.'s ; R. S. Dale, St. Mary's ; D. H. Davies, Camb. and Middx. ; D. L. L. Davies, St. Bart.'s ; G. M. Denning, Camb. and St. Mary's ; F. H. D'Souza, Guy's ; N. J. Dias, St. Bart.'s ; Bessie Dodd, Liverp. ; Dorothy S. R. Drew, Royal Free; R. C. Easterling, King's Coll. ; T. S. Eddy, Cape and Guy's ; K. C. Eden, Univ. Coll. ; J. D. Fergusson, Camb. and St. Thos. ; I. C. Fletcher, Camb. and Middx. ; A. F. Fowler, St. Thos. ; P. S. Fox, Leeds ; C. S. France, Manchester ; I. N. Fulton, Camb. and St. Bart.'s ; E. Galinsky, Univ. Coll. ; R. H. Gardiner, Oxon and King's Coll. ; J. C. Garland, Middx. ; D. J. Gilbert, King's Coll. ; A. J. Glazebrook, St. George's ; C. H. Goodliffe, Birmingham ; M. E. Gordon, Cardiff ; E. O'D. C. Grattan, Camb. and St. Thos. ; B. S. Grant, London ; P. R. Greeves, Oxon and Middx. ; A. V. Griffiths, Cardiff ; V. P. Gupta, Lucknow and West London ; A. H. Hall, Univ. Coll. ; H. A. Hamilton, Camb. and Guy's ; M. Hamilton, Univ. Coll ; E. A. Hardy, Westminster ; E. E. Harris, Camb. and St. Bart.'s ; O. L. Hewson, Birmingham ; J. H. Hovell, Charing Cross ; T. H. Howell, Camb. and St. Bart.'s ; J. H. Hudson, Leeds ; H. C. Hugh, St. Bart.'s ; J. Hughes, Camb. and St. Bart.'s ; C. C. Hurst, Manchester ; J. R. Hutcheon, London ; I. H. Jenkins, St. Thos. ; J. R. R. Jenkins, St. Bart.'s ; B. S. Jirge, Bombay and London ; D. M. Jones, Cardiff and St. Bart.'s ; E. J. Jones, Cardiff and Middx. ; E. I. Jones, King's Coll. ; J. E. V. Jones, Camb. and St. Thos. ; R. N. Jones Birmingham ; W. M. P. Jones, Cardiff ; Nora L. Keevil, Royal Free ; J. H. Kellgren, Univ. Coll. ; M. B. Khan, Leeds ; D. M. King, Cape Town ; N. F. Kirkman, Manchester ; R. M. Kirkwood, St. Bart.'s ; Freda H. Knight, Manchester ; R. W. G. Lancashire, Oxon and Manchester ; J. L. Lanceley, Liverpool ; J. H. Lankester, Camb. and St. Thos. ; J. V. Laverick, St. Bart.'s ; L. F. E. Lewis, Manchester ; F. D. M. Livingstone, Camb. and St. Bart.'s ; M. C. W. Long, St. Mary's ; A. J. McCall, Liverpool ; D. C. MacCarthy, St. Bart.'s ; D. P. McCoy, Camb. and St. Bart.'s ; G. G. Macdonald, Univ. Coll. ; E. H. Markby, London ; T. D. M. Martin St. Thos. ; A. G. C. Mason, Middx. ; E. B. Z. Masterman, Camb. and St. Bart.'s ; S. G. Mayer, Camb. and London ; A. Moore, Univ. Coll. ; G. H. Moore, Manchester ; P. Morris, Westminster ; E. J. Moynahan, Univ. Coll. ; P. H. Newman, Middx. ; W. S. Noble, Guy's ; Ivy E. Oliver, Royal Free ; M. M. Osher, King's Coll. ; G. R. C. Palmer, St. Thos. ; R. S. Pepperdine, Manchester ; R. Peters, Univ. Coll. ; R. A. Piachaud, Ceylon and Univ. Coll. ; T. H. Pierce, Liverpool ; E. H. Platts, Camb. and Leeds ; R. H. Purnell, St. Bart.'s ; L. Rabinovitch, Leeds ; F. Riggall, Western Univ. (Ontario) ; W. G. S. Roberts, Birmingham ; A. T. Roden, St. Bart.'s ; Katharine C. Rogers, Royal Free ; M. Rooms, Leeds ; W. T. Ross, Cape and St. Bart.'s ; C. R. St. Johnston, Birmingham ; Irene E. Sandford, Royal Free ; D. Sanyal, Lucknow and London ; R. S. F. Schilling, St. Thos. ; E. A. Schott, Heidelberg and Guy's ; S. K. Sen, Patna ; H. H. S. Sherwill, Edinburgh ; H. G. Silvester, Univ. Coll. ; N. W. Sivolella, St. Bart.'s ; K. Soddy, Univ. Coll. ; A. W. Stallard, Camb. and St. Bart.'s ; J. Starkie, Manchester ; J. R. St. G. Stead, London ; F. G. St. C. Strange, London ; J. S. F. Sutton, Guy's ; J. C. Thomas and M. J. H. Thomas, Univ. Coll. ; Mary G. Thomas, Bristol ; L. N. Trethowan, Guy's ; R. H. A. Turner, Camb. and Westminster ; T. H. Tulpule, Bombay and West London ; R. W. D. Turner, Camb. and St. Thos. ; J. K. B. Waddington, Liverpool ; R. C. Walch, Manchester and St. Bart.'s ; Kathleen M. Webster, Royal Free ; B. Weiner, St. Bart.'s ; O. C. Wilkinson, Birmingham ; M. W. Williams, Univ. Coll. ; F. L. Wollaston, Bristol ; B. L. E. Wong, Guy's ; G. M. Woolford, St. Thos. ; Fanny D. Wride, Royal Free ; K. H. Wright, Guy's ; and Betty M. Zeal, Univ. Coll.

Diplomas were conferred (jointly with the Royal College of Surgeons) upon candidates whose names were given in our issue of July 21st (p. 172).

The college will be closed for cleaning on Saturday, August 4th, and will reopen on Monday, Sept. 17th.

University of London

At recent examinations the following candidates were successful :—

M.D.

Branch I. (*Medicine*).—H. G. Anderson, St. Bartholomew's Hosp. ; W. E. K. Coles, Univ. College Hosp. ; T. A. L. Davies, St. Thomas's Hosp. ; S. N. Evans, Guy's Hosp. ; Anderson Garland, King's College Hosp. ; J. C. Heather, Guy's Hosp. ; L. H. Howells, London Hosp. ; K. D. Keele, St. Bartholomew's Hosp. ; Alexander Kennedy, St. Thomas's Hosp. ; F. P. L. Lander, Middlesex Hosp. ; L. G. Norman (University Medal), Univ. College Hosp. ; † Edward Renbom, St. Bartholomew's Hosp. ; T. S. Stone and F. W. Ta'Bois, London Hosp. ; M. R. Thomas, Univ. College Hosp. ; F. W. Willway, M.S., King's Coll. Hosp. ; and A. L. Wingfield, St. Thomas's Hosp.

† Awarded a Mark of Distinction.

Branch II. (*Pathology*).—Dorothy Woodman, Lond. (R.F.H.) School of Med. for Women.

Branch IV. (*Midwifery and Diseases of Women*).—Marian J. Cunning, Lond (R.F.H.) School of Med. for Women ; and K. M. Masani, Middlesex Hosp.

Branch V. (*Hygiene*).—R. C. Cohen, Univ. College Hosp. and Lond. School of Hyg. & Trop. Med. ; D. D. Payne, St. Thomas's Hosp. and Lond. School of Hyg. & Trop. Med. ; and G. E. B. Payne, Univ. College Hosp. and Lond. School of Hyg. & Trop. Med.

B. St. J. Steadman has satisfied the examiners in the third (B.D.S.) examination in dental surgery and R. F. Pusey has passed in Group I. of the examination.

Royal College of Physicians of Edinburgh

The council will shortly award two Kirk Duncanson fellowships for medical research. Particulars will be found in our advertisement columns.

Royal College of Surgeons of Edinburgh

At a meeting of the college on July 25th, with Dr. A. H. H. Sinclair, the president, in the chair, the following, who passed the requisite examinations, were admitted Fellows :—

George Herbert Cashmore, M.B. Adel. ; John Rupert Crumbie, M.R.C.S. Eng. ; Philip Norman Cutner, M.B. Edin. ; Henry Leslie Nugent Davies, M.B. Birm., Alexander Duff, M.B. Glasg. ; Ronald Walter Graham-Campbell, M.R.C.S. ; Bruce Rudolph Hallows, M.D. Melb. ; Rowland Anthony Harold Krynauw, M.B. Edin. ; Charles Crawford McKellar, M.B. Sydney ; Nathan Pencharz, M.B. Edin. ; George Wilfred Pottinger, M.B. Sydney ; Suresh Chandra Sinha, M.B. Calcutta ; Cyril Francis Sullivan, M.D. Ontario ; Abraham Track, M.D. Toronto ; Desmond Coleman Trainor, M.B. Sydney ; Albertus van der Poel, M.B. Edin. ; Andrew Watt, M.B. Edin. ; Robert James Wilson Withers, M.B. Belf. ; and Arthur Greville Young, L.R.C.P. Edin.

The following candidates were granted the diploma of L.D.S.

S. H. Harrison, Eleanor L. Mackinnon, I. J. G. Mowat, G. H. Fletcher, E. I. Kohn, E. M. Hope, Ernst Levy, Siegfried Bendix, N. G. Henry, and W. M. Hendry.

Scottish Conjoint Board

At recent examinations by the Board of the Royal Colleges of Physicians and Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, the following candidates were successful :—

L.R.C.P., L.R.C.S., AND L.R.F.P.&S.

Ida Hirschmann, Siegfried Hertz, Eleonore Bergmann, John Plesch, Ernst Zuckermann, Hans Koebner, Ernst Lucas, S. K. Westmann, Friedrich Jacobsohn, C. H. Rothschild, C. Becker, Michael Gutstein, Heinz Fuld, Walter Auerbach, Werner Kupfermann, E. K. Ledermann, F. J. Neuwahl, Kurt Samson, Paul Kahn, Paul Nathan, Ernst Marx, Martha Turk, Alfons Lechner, Otto Hartog, Sally Rummelsburg, Alfred Altmann, Erich Gostynski, M. S. Khan, Fritz Ewer, J. L. S. Steele-Perkins, A. S. W. Buchanan, R. H. Hunt, C. W. A. de Silva, Hans Jungmann, Richard Hamburger, Mathilde Rothschild, J. R. Bruce, H. A. Thorner, J. F. Macgregor, L. C. Goldwater, Harry Fleming, P. T. Hauff, F. A. Paul, and L. H. Becker.

Queen's University of Belfast

On July 10th the following degrees were conferred :—

M.D.

J. D. Boyd and W. R. M. Morton (with gold medals); T. H. Davey (with commendation) (in absentia); and James Carson, J. A. Fisher, and T. H. W. Ritchie.

M.B., B.CH. & B.A.O.

J. A. W. Bingham, J. S. Darling, and W. M. Loughridge (with second class honours); W. G. Bateson, O'F. P. Boyle, E. B. Bradbury, M. S. Campbell, W. N. J. Clarke, T. G. Corr, E. S. W. Forsythe, W. R. N. Galbraith, T. E. Hayden, Leopold Herbert, Ivy A. Johnston, J. P. Kelly, T. W. Kemp, D. A. Lindsay, T. A. C. McQuiston, Ruth M. Malone, H. J. Minford, W. R. D. Mitchell, B. O. Moore, Eileen Morgan, J. L. Morton, J. B. Morwood, Mary E. Nevin, Muriel B. O'Doherty, M. S. Patrick, S. Porter, D. W. Pratt, J. L. Rosenfield, W. McC. Ross, T. H. Shaw, R. F. Stronge, W. G. Swann, A. F. Turner, R. J. Waugh, and W. C. McC. Wilson.

British College of Obstetricians and Gynæcologists

At a meeting of the council on July 24th Dr. J. S. Fairbairn was re-elected president, and Dr. H. Russell Andrews and Dr. Bethel Solomons were elected vice-presidents. The following officers were also re-elected: hon. treasurer, Mr. Eardley Holland; hon. secretary, Prof. W. Fletcher Shaw; hon. appeal treasurer, Sir Comyns Berkeley; hon. librarian, Dr. A. E. Giles; hon. assistant librarian, Mr. F. Roques. Miss Louisa Martindale was coöpted a member of council.

The following were elected to the membership :—

Nicholas Attygalle (Ceylon), J. N. Chesterman (Sydney), A. F. Clift (London), T. F. Corkill (New Zealand), D. W. Currie (Leeds), M. D. A. Evans (Cardiff), W. D. Galloway (Holmfirth), Frieda R. Heighway (Sydney), R. N. Howard (Melbourne), R. J. Kellar (Edinburgh), Marjorie J. Lyon (Sydney), J. H. Peel (London), Jack Polonsky (South Africa), A. L. Potter (Liverpool), J. L. Scholes (Melbourne), P. N. L. Seager (Dublin), Nora Proctor-Sims (India), T. F. Todd (Preston), R. C. Thomas (Porthcawl), C. H. Walsh (Liverpool), C. A. Whitfield (Aldershot), Bryan Williams (London), and J. S. Young (Glasgow).

The following were formally admitted by the president:

Fellows.—A. M. Claye (Leeds), John Ellison (London), and (in absentia) H. C. E. Donovan and Edward Rowden White (both of Melbourne).

Members.—Charles Granville Chapman (Grimsby), Calvert Martin Gwillim (London), Gladys Hill (London), and (in absentia) William Irving (New Zealand) and Agnes Marshall Cowan (Manchuria).

A draft scheme for an investigation into analgesics suitable for use by midwives was accepted.

Epsom College

The prizes at Epsom College were distributed on Saturday last by Lord Leverhulme, who recently succeeded Lord Burnham as President of the College. Lord Leverhulme, in addressing the boys, said some wise words when he recalled to them the efforts that many parents made in order to give their children a good start in life. Undoubtedly, he said, the most important thing about school life was the opportunity which it gave for the formation of character and for the cultivation of the particular virtues of unselfishness and truth. With regard to study, he pointed out that while the key-note to success in the pursuit of knowledge was the ability of the boy to take an interest, the amount of interest taken would depend not entirely upon the quality of the pupil but also on the methods employed by the teacher to create it.

The Headmaster, in welcoming Lord Leverhulme, referred to a satisfactory year's progress which had been rounded off by a striking improvement in examination results. He enumerated the additions made to the school buildings during the year and announced that the Council had decided to put up a block of new class-rooms, ablution rooms and changing rooms on the site of the present old chemistry block. A representative of the Ministry of Health, he said, had spent a week of the summer term at the College investigating the diet and muscular reactions of the boys, and the data, when collated, should serve a good purpose.

Fine weather led to an unusually large attendance, over 1500 parents and guests being present, when they were able to see the old boys, including seven ex-captains of cricket, beat the present eleven, and see also an effective open-air assault-at-arms. In the evening, the School Choral and Orchestral Societies gave a performance of *H.M.S. Pinafore.*

University of Manchester

The following appointments are announced: lecturer in diseases of children, Dr. J. F. Ward; clinical lecturers in diseases of children, Dr. H. T. Ashby and Dr. Catherine Chisholm; demonstrator in human physiology, Dr. J. C. Nicholson; clinical demonstrators in diseases of children, Dr. T. N. Fisher and Dr. Sylvia Guthrie.

Oxford Ophthalmological Congress

At a recent meeting of the Council the following executive appointments were made for 1935: master, C. G. Russ-Wood; immediate past-master, Cyril H. Walker; deputy-master, Philip H. Adams; hon. secretary and treasurer, F. A. Anderson, 12, St. John's-hill, Shrewsbury. The date of the next Congress is July 4th–6th.

A Memorial to Madame Curie

In 1928 an appeal was made for funds to establish a centre for the radium treatment of cancer in women. The Marie Curie Hospital, established in Fitzjohn's-avenue, London, N.W., is the result of this appeal, and it has already treated more than 2000 cases. A department for deep X ray therapy has lately been added (see THE LANCET, 1934, i., 419), but already its resources are overtaxed so that patients are turned away. In these circumstances the hospital has issued an appeal, signed by Sir William Bragg, O.M., Mr. Stanley Baldwin, and Prof. E. Mellanby, F.R.S., and by Miss Maud Chadburn, M.D., and Mrs. Walter Runciman as chairman and vice-chairman of the hospital. They suggest that a fitting memorial to the late Madame Curie would be to extend the work of this hospital in which she was deeply interested where cure of cancer in women is a direct result of her brilliant intellect and life-labour.

Flats for the Working Classes

The Departmental Committee appointed by the Minister of Health to report on materials and methods of construction suitable for the building of flats for the working classes met for the first time on July 27th. Mr. Geoffrey Shakespeare, the Parliamentary Secretary, who greeted the members, said that under the new Bill to be introduced in the autumn, encouragement would be given to the building of flats for the replacement of slums and the relief of overcrowding. He expressed the hope that the committee would present an interim report before Christmas, so that an authoritative review of the available methods of construction would be ready when the terms of the Bill became effective. The chairman of the committee is Sir George Humphreys.

Donations and Bequests

The late Mrs. L. Ludlow-Bruges, who died in Jersey, left by will a legacy amounting to £195,980 for the benefit of the Melksham Cottage Hospital, Wiltshire.—By will the late Mr. Arthur Goldthorpe, of Ottery St. Mary, Devon, among other bequests left £1000 to Doncaster Royal Infirmary, to endow a bed; £1000 to Woolwich War Memorial Hospital, to endow a bed; and £200 to the Pharmaceutical Society of Great Britain.—Mr. John Morrell, of Harrogate, who died recently, bequeathed £1000 to Harrogate Infirmary, for the endowment of a "John Morrell" bed.

Bristol General Hospital

The report for 1933 lays great stress upon finance. The excess of ordinary expenditure over ordinary income was more than £13,000, and the investment income has again fallen off owing to the sale of securities to meet current expenditure. All the year's legacies have been absorbed, yet the overdraft increased from £17,000 in 1932 to £23,575. But for patients' payments of recent years it would have been impossible to keep all the beds open; 38 per cent. of the in-patients have been unable to make any contribution. There were 5203 in-patients, and the average number of beds in daily occupation was 256; each figure is a record. Without disadvantage to the patient, the total cost of each has been reduced from £7 18*s.* to £7 6*s.*, and the cost per occupied bed from £151 18*s.* 10*d.* to £148 8*s.* 8*d.*

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, August 6th to SATURDAY, August 11th.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Demonstration of Chest Cases by Dr. H. V. Morlock, at 3 P.M. on Sat. PANEL OF TEACHERS: Individual clinics in various branches of Medicine and Surgery are available daily.—Courses, demonstrations, &c., arranged by the Fellowship of Medicine are open only to Members and Associates.

Appointments

LAW, F. W., M.D. Camb., F.R.C.S. Eng., Ophthalmic Surgeon to Guy's Hospital.

LONG, M. H. E., B.Sc., M.B., Radium Registrar, King's College Hospital.

PEMBREY, MERVYN S., M.R.C.S., Certifying Surgeon under the Factory and Workshop Acts for Stratford-on-Avon.

SHAWCROSS, E. W. H., L.R.C.P. Lond., M.R.C.S., Hon. Radiologist in charge of X ray therapy, King's College Hospital.

Charterhouse Rheumatism Clinic, Hallam-street, W.

JULER, F. A., F.R.C.S. Eng., M.B., B.Ch. Camb., Consulting Ophthalmologist;
PARKER, GEOFFREY, F.R.C.S. Eng., M.B., B.Chir. Camb., Consulting Surgeon;
COKE, A. F. H., L.R.C.P. Lond., M.R.C.S., Assistant Physician.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Mental Hospital.—Jun. Asst. Phys. £300.

Altrincham General Hospital.—Sen. H.S. At rate of £150.

Bangor, Caernarvonshire and Anglesey Infirmary.—Jun. H.S. At rate of £100.

Birkenhead General Hospital.—Sen. H.S. At rate of £150. Also Second H.S., H.P., and Cas. O. Each at rate of £100.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.

Bootle General Hospital,—H.P., 2 H.S.'s and Cas. O. Each at rate of £150.

Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.

Cancer Hospital, Fulham-road, S.W.—Clin. Asst. £250.

Central London Ophthalmic Hospital, Judd-street, W.C.—Chemical Pathologist. £105.

Chesterfield and North Derbyshire Royal Hospital.—H.S. At rate of £150.

Connaught Hospital, Walthamstow, E.—Sen. Res. M.O. At rate of £150.

East Ham Memorial Hospital, Shrewsbury-road, E.—H.P. At rate of £150.

Edinburgh, Royal College of Physicians.—Two Fellowships. Each £300.

Exeter, Royal Devon and Exeter Hospital.—H.S. to Ear, Nose, and Throat Dept. At rate of £150.

Gloucester, Gloucestershire Royal Infirmary, &c.—Hon. Ear, Nose, and Throat Surgeon.

Great Yarmouth General Hospital.—H.S. £140.

Greenwich Metropolitan Borough.—Sen. Asst. M.O. for Maternity and Child Welfare Work. £600.

Hull Royal Infirmary.—Third H.S. At rate of £150.

Ilford, King George Hospital.—Pathologist. £500.

Infants Hospital, Vincent-square, Westminster, S.W.—Hon. Clin. Asst. and Med. Reg.

Leeds Public Dispensary and Hospital, North-street.—Hon. Pathologist.

Lincoln County Hospital.—H.S. At rate of £150.

Liverpool, Hahnemann Hospital, Hope-street.—Res. M.O. At rate of £125.

London University.—University Chair of Medicine. £2000. University Chair of Pathology. £1200. University Readerships. Each £800.

Manchester, Ancoats Hospital.—H.S. At rate of £100. Also Surg. and Med. Reg. Each at rate of £50.

Manchester and Salford Hospital for Skin Diseases.—H.S. At rate of £100.

Manchester, Booth Hall Hospital.—Res. Surg. O. £400.

Manchester, Christie Hospital and Holt Radium Institute, Withington.—Hon. Cons. Laryngologist. Also Res. Surg. O. At rate of £150.

Manchester, Royal Eye Hospital.—Jun. H.S. £120.

Manor House Hospital, Golders Green, N.W.—Jun. M.O. £200.

Middlesbrough, North Riding Infirmary.—H.P. At rate of £125.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Res. M.O. £250.

Newcastle-upon-Tyne Eye Hospital.—Sen. Res. H.S. £300.

Oswestry, Robert Jones and Agnes Hunt Orthopædic Hospital.—Two H.S.'s. Each at rate of £200.

Plymouth City Hospital.—Deputy Med. Supt. £450.

Plymouth City (General) Hospital.—Jun. Asst. M.O. £250.

Plymouth City and Port.—Asst. M.O.H. £500.

Poplar Hospital for Accidents, East India Dock-road, E.—Second Res. O. £175.

Preston, County Mental Hospital, Whittingham.—Res. Jun. Asst. M.O. £500.

Preston and County of Lancaster Royal Infirmary.—Res. Surg. O. £300. Also H.S. and Cas. O. Each at rate of £150.

Preston, High Carley Sanatorium, near Ulverston.—Asst. Tuber. M.O. £450.

Queen Mary's Hospital for the East End, E.—Asst. Pathologist £400. Anæsthetist. Also Cas. O. £150.

Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O. Each at rate of £100.

Royal Naval Medical Service.—Ten M.O.'s.

Royal Northern Hospital, Holloway, N.—Obstet. H.S., and H.P. Each at rate of £70.

St. Bartholomew's Hospital, E.C.—Dental H.S.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Ophth. Surgeon.

Sheffield Children's Hospital.—H.P. At rate of £100. H.S. £100. Also Res. M.O. £175.

Sheffield, Jessop Hospital for Women.—Asst. Reg. and Obstet. Tutor. £400. Also H.S. At rate of £100.

Shrewsbury, Royal Salop Infirmary.—Cas. O. and Res. Anæsthetist. At rate of £160.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Asst. H.P. £125.

Swansea General and Eye Hospital.—H.P. At rate of £150.

Torquay, Torbay Hospital.—Hon. Dental Surgeon.

Tunbridge Wells, New Kent and Sussex Hospital.—Sen. and Jun. H.S. £175 and £125 respectively.

Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.

Westminster Hospital, Broad Sanctuary, S.W.—Surgeon. Also Wander Scholarship in Diseases of Children. £250.

Worcestershire Mental Hospital, Barnsley Hall, Bromsgrove.—Second Asst. M.O. £350.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Greenwich, London; and at Melbourne and Bakewell, Derby.

Births, Marriages, and Deaths

BIRTHS

HICKS.—On July 26th, at Hayes Barton, Totteridge-lane, Herts, the wife of Philip Yelverton Hicks, M.B., of a daughter.

KIRK.—On July 30th, the wife of Robert S. Kirk, M.B., Ch.B., of Queen Anne-mews, W., of a son.

SKYRME.—On July 23rd, at Orchard Cottage, Royston, Herts, the wife of Alan Deudney Skyrme, M.R.C.S., L.R.C.P., of a son.

DEATHS

BULLMORE.—On July 25th, at Maidstone, Charles Cecil Bullmore, L.R.C.S., L.R.C.P., aged 64.

GANNER.—On July 29th, at Westbourne Lodge, Acocks Green, Birmingham, Joseph Ganner, M.B. Lond., in his 64th year.

WARING.—On July 21st, at Birmingham, after a short illness, Charles John Waring, M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE DUKE OF GLOUCESTER AT PAPWORTH.—Last week the Duke of Gloucester opened the Bernhard Baron hospital at the Papworth Village Settlement for tuberculosis and laid the foundation stone of the new surgical block. He inspected the village, visited all the departments, and learned that the whole of the new building and its equipment, including the making of the plans, had been done in the village which now has a population of 1000. He was thanked for his visit by Sir Pendrill Varrier-Jones, the medical director.

NOTES, COMMENTS, AND ABSTRACTS

FACTORS INFLUENCING CHILDREN'S SLEEP

THE influence of the cinematograph on the youth of to-day is one which we may deplore but cannot afford to neglect. There exist at present extremely few scientific data about the exact nature of the response of children of different ages to motion pictures of all kinds. A series of studies[1] embarked on by an independent organisation in order to try to answer the question, "Just what effect do motion pictures have upon children of different ages?" represents part of a much wider scheme of investigation. The main problem has been analysed for purposes of investigation into a number of components, and the authors of this volume have devoted their attention to investigating the effects of different types of motion picture on the sleep of children of different ages. For this purpose, groups of children were chosen in an institution in which other disturbing factors could to a considerable extent be controlled, and since there has been little experimental work of any kind done on the influence of age, sex, artificially produced insomnia, and so forth upon children's sleep, opportunity was taken of carrying out parallel investigations on these problems in order to evaluate the results of the main investigation. Motility of the child during sleep was chosen as the best index of disturbance. This was measured quantitatively by an apparatus described as a hypnograph, mounted for maximal sensitivity to postural movement in the centre of the springs of the bed, and connected to a polygraph designed to record movements in 20 beds simultaneously. Briefly, the authors found that the change in motility after seeing motion pictures might be in the direction of an increase or a decrease, but that increase predominated. Children under ten showed relatively less disturbance than did older children, the maximum disturbance occurring at puberty. Increased movement in the earlier part of the night (when sleep is at its maximum) is not compensated for by increased relaxation in the latter part of the night. The authors conclude that seeing certain films does induce in children a disturbance of "relaxed recuperative sleep" to a degree which, if repeated sufficiently often, may be regarded as prejudicial to normal health and growth. With regard to the flicker limen, it was found that this was sufficiently low for both sexes at all ages to preclude the perception of flicker and resultant eyestrain for motion pictures shown at the present rate. Whilst it may perhaps seem that this is a rather small mouse to have emerged from the record of over 3½ million minutes of sleep given by 170 different children, the investigation is of considerable interest as part of a coördinated psychological experiment on a large scale, and it is to be hoped that the final synthesis of the various components may lead to a clearer understanding of both the dangers and possible value of motion pictures in the upbringing of children.

THE ÆTIOLOGY OF PARAPSORIASIS

THIS interesting if uncommon dermatosis, first isolated and described by Brocq in 1902, and later by Unna, Jadassohn, Juliusberg, and Radcliffe Crocker under different names, is extremely chronic and intractable. Three types are recognised, the guttate (in minute patches), larger lesions (en plaques), and the lichenoid. All are quite superficial, slightly scaly, usually of a brick-red colour, and symptomless. The limbs and the trunk are the usual localisation, and the flexor surfaces are equally affected with the extensor. The well-known histologist, Civatte, regarded the disease as tuberculous in 1906, but his even more famous countryman, J. Darier, in his "Précis de Dermatologie" (1928), wrote of its origin as "inconnue, ou à peine soupçonnée et probablement diverse." Ravaut and Rabeau[1] appear to have decided definitely in favour of Civatte's original opinion, in view of positive findings in inoculated guinea-pigs, and the therapeutic results of Vaudremer's T.B. vaccine given intradermically in increasing doses, after only slight improvement with a gold salt. The patient, a waiter aged 39, had observed the slow progress of the typical plaques on his forearms, arms, and shoulders for a space of 10 years, and no treatment had availed in the slightest to check their spread up to December, 1932, when he first consulted the authors. The diagnosis of parapsoriasis was made both on clinical and histological findings, the latter conducted by Civatte. There was nothing in the personal or family history to suggest a tuberculous diathesis, nor were any tuberculous stigmata found. Cutaneous tests to human, bovine, avian, and the "ultra-virus" tuberculins revealed a strong positive reaction to the last named, and less violent cuti-reactions to human and bovine tuberculins of the ordinary type. Inoculations of the patient's blood into guinea-pigs was carried out in two laboratories, and gave positive results in the second passage in 2 animals. The duration of these experiments was nine months and only two positive results were obtained. According to the authors these results resemble those termed "Calmette-Valtis," which are said to follow inoculation of a tuberculous "ultra-virus" in contradistinction to those obtained in typical experimental tuberculosis. Of great interest was the almost complete involution of the eruption after 12 intradermic injections of the Vaudremer vaccine[2] at a time of the year when a seasonal aggravation had been the rule.

It will be remembered that not long ago Ramel of Lausanne claimed to have established the tuberculous ætiology of erythema multiforme by similar blood inoculations through guinea-pigs. Three attempts to confirm his work (by Hallam and Edington at Sheffield, by Percival at Edinburgh, and by E. A. Wood at University College Hospital) failed completely. In not one of the 40 or more cases examined could Ramel's findings be confirmed. The "ultra-virus" theory seems to be a new name for Ramel's original conception, and dermatologists will demand more conclusive proof of the tuberculous ætiology in parapsoriasis than is afforded from the results of investigation and treatment of a single case.

THE AUTHOR'S AND WRITER'S WHO'S WHO

THIS is a well compiled directory[3] which will serve as a reference guide to authors and journalists. It contains 15,000 short biographies of persons, most of whom can show printed or other evidence why they should be included in the category, and among them will be found a considerable number of medical men and women. The book is published with the coöperation of leading literary and journalistic associations and under the ægis of a well-informed advisory committee. Among the points of interest are the names of writers who specialise in a particular subject which will be found in a cross-index under the name of that subject, while there is a useful guide to noms-de-plume. At the end of the directory will be found a section of "legal information," where we have remarks on copy-

[1] Children's Sleep. A series of studies on the influence of motion pictures; normal age, sex, and seasonal variations in motility; experimental insomnia; the effects of coffee; and the visual flicker limens of children. By Samuel Renshaw, Professor of Experimental Psychology, Ohio State University; Vernon L. Miller, Instructor in Psychology, Bowdoin College, Payne Fund Research Fellow, 1930–31; and Dorothy P. Marquis, N.R.C. Fellow, Yale University, 1931–32, Payne Research Fellow, 1929–30. London: Macmillan and Co., Ltd. 1933. Pp. 242. 8s.6d.

[1] Presse Médicale, May 23rd, 1934, p. 837.

[2] Ibid., 1931, xxxix., 1464.

[3] The Author's and Writer's Who's Who, 1934. London: Shaw Publishing Co., Ltd., Carmelite-street, London, E.C. Pp. 894. 15s.

right law and on the law of libel, comments on the liabilities of authors for income-tax and notes on agreements between the author and the publisher. In the last of these articles it seems to be suggested as a matter of course that terms should be accepted by the author of fiction which are less than any writer with a public at all would accept, though such terms might promise too high a return for the author with no public at all. There is no reference made to any of the particular circumstances which prevail in the publication of scientific books.

This compilation will turn out of practical utility in newspaper and business offices.

MALARIA IN MAN AND MONKEY

THE *Rivista di Malariologia* (1934, vol. xiii., No. 2) contains two papers in which investigations of malaria parasites in ape and monkey throw light on, or more directly concern, malaria in man. J. Schwetz reports another instance in which the chimpanzee has been found harbouring the common human parasites, *Plasmodium vivax* and *P. falciparum*—schizonts and merozoits of the former and a crescent and numerous *tenue* forms of the latter, apart from the stages more usually found; the finding has a direct if local interest for the medical sanitarian. The second deals with macacus monkeys infected with *P. knowlesi* and *P. inesi*, and conclusions directly important for medicine emerge from direct observation of, and counts in, blood films; in it S. L. Brug shows that an estimate of the numbers of circulating plasmodia is indeed a rough one when it is made in terms of the number of leucocytes in a given quantity of blood; moreover, in thick films such counts become impossible when there are more than ten plasmodia to each leucocyte.

Counts throw light also on the rate and site of malarial development in the host's body. The vegetative cycle of *P. knowlesi* is such that every 24 hours there is a nine-fold multiplication. When, however, blood containing this parasite was inoculated into another monkey in such quantity that the numbers of plasmodia in the blood of the new host would have amounted to 17 perc.mm., the actual count on the tenth day after inoculation was three, and on the thirteenth day 97,000. Some 94,000 of these must then have been produced in the deep organs and have flooded the circulation only when a resistance point had been passed. On the other hand, had proliferation been at this rate throughout, the impossible number of some 40,000 millions would have been reached in each c.mm. of blood; accordingly, their destruction must be enormous. Again, there were estimated to be present in the whole blood between the eleventh and the fifteenth days about three-quarters of a million parasites per c.mm., yet in that period over four million red corpuscles were destroyed. Two explanations are offered for this discrepancy: the first is that each parasite destroys several corpuscles one after another, to which the objection is made that in that case it should be frequently possible to catch plasmodia in transit, whereas free parasites are rare; the second is that a circulating toxin excreted by plasmodia destroys corpuscles other than those actually parasitised, the explanation favoured by Brug. Both assume that destruction takes place wholly after the corpuscles reach the circulation.

P. knowlesi may show band-like forms, but does so only in places where the film is thin, a fact which falls in with information given to Brug by Prof. L. N. Swellengrebel, to the effect that the well-known band-like form of human quartan malaria is never found in thick films. Brug's suggested explanation is that when the film is thin drying is rapid enough to kill the parasite before it has time to assume the globular shape which is commonly taken up by protozoa in the throes of death. But that can hardly be the whole explanation, for he reports and figures the fact that in any field in which band-like forms are present they all lie parallel; and the mere fact that all have died quickly can hardly have induced them all to set themselves to the same compass point. This must surely be due to some unappreciated manipulation in the making of the slide.

On points where monkey malaria resembles that of man, it seems clear that since pathological examinations can be made in monkeys in predetermined conditions, their execution can give a reasonably reliable lead in the clearing-up of still doubtful points in the reactions of man's body to malaria parasites.

WINE AND FOOD

A PAMPHLET with this title has been published by the Wine and Food Society, London (Simpkin Marshall, Ltd., 1934, Pp. 80. 2*s.* 6*d.*); it is the first issue of what is intended to be a quarterly magazine devoted to gastronomy. The proceedings of the Society, as set out here, contain some shrewd remarks on dining and wining, and an introductory essay by Prof. H. E. Armstrong links up the science of medicine neatly with the study of food. He says that an era is upon us when food must have full scientific and ethical consideration and the social economics of supply must be the common care, and what he thinks of the public attitude towards such matters is indicated by the title of his prefatory remarks, which is "Our bedrugged lives."

A "POST MORTEM" ON DR. JOHNSON

IN a recent number of the *London Hospital Gazette* Dr. Russell Brain writes an interesting note on the constitution and ailments of the lexicographer. He points out that Johnson was an amateur physician who also had some scientific equipment, for the definitions of medical terms in the famous dictionary were admirably chosen and derived from the right sources. Further evidence of his medical attitude can be found in the fact that in spite of his willingness to prescribe and his self-nomination as "dabbler in physic" he was sound along many main lines. Johnson was early to point to the abuses both of over-drugging and methodical blood-letting, and saw the evils of over-eating and -drinking. He had many physical infirmities, he was of unwieldy bulk, had poor vision—and, indeed, had lost the sight of one eye—he was deaf and asthmatic. His prominent symptoms at the time of his death were dyspnœa and dropsy, and at the post-mortem examination the commencement of hydatids was found in the left kidney, while the right organ was entirely replaced by two hydatids. Dr. Brain concludes with an interesting psychoanalysis of Johnson's character, taking special note of his awkward gesticulations and his recurrent periods of melancholia, and his final picture of Johnson is that of a man of genius, harassed throughout a long life by physical infirmity while striving to find adequate employment for his talents and satisfaction for his ambitions. Yet he triumphed over his handicaps and has achieved an immortality in human affection which might well have been denied to him as a successful politician or lawyer, either of which he could surely have become.

LIFE-SAVING MADE EASY

UNDER this title Dr. H. C. Hopkinson [1] has issued a little pamphlet of sixteen pages in which he describes "a new and original method" of life-saving in the water. Briefly it consists of gripping the back of the victim's head with the thumb and finger-tips of one hand thus leaving the other hand free. By this method the author claims that the rescuer is well clear of the person rescued, there is less danger from clutching, both are higher out of the water than with other methods, and the rescuer has more freedom for propelling himself and his burden. At the same time he can change hands and so obviate fatigue. It is claimed that by this method two children can be saved at the same time.

[1] Cambridge: W. Heffer and Sons, Ltd. 1934. 6*d.*